VISIT…

A Comprehensive

SMALL ARMS MANUAL

for

State Guards · Regular Police Departments
Auxiliary Police Departments · Coast Guard Auxiliaries
Plant Guards and Civilians

By CHARLES T. HAVEN

Co-author of A HISTORY OF THE COLT REVOLVER,
AUTOMATIC ARMS, FOR PERMANENT VICTORY

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VISIT…

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PREFACE

WE ARE engaged in an "all out" war. Not only are there actual battle fronts all over the world but this war is one that reaches into the homes of all of us. American soldiers are now fighting the forces of the Axis on many foreign fronts in order that our way of life may continue. Still more Americans are staying at home to produce the sinews of war for the fighting men who need them so badly and know how to use them so effectively.

We, the stay-at-homes, have, however, the added problem of guarding our homes and those of our countrymen fighting overseas while the regular armed forces are away.

The saboteur, the rioter, the possible invader, must be met and conquered in this country without impairing the effectiveness of our overseas forces. For this purpose State Guards and other local protective units have been organized.

With the thought that a general knowledge of all available small arms, their effectiveness and use, and an understanding of methods of training in the proper utilization of them may help to carry out the aims of State Guard and other local defense organizations, this manual has been written. It is largely composed of material used by the author in lectures to State Guard units and the answers to questions asked in the course of those talks. He hopes it will answer the questions of many State Guardsmen whom he cannot reach personally.

While this manual has been written with the State Guard primarily in mind, it is designed to bring together and correlate such information on all types of firearms as is necessary for intelligent and efficient handling of them by any local defensive units. Relatively little detailed reference has been made to strictly modern military weapons, as the training manuals covering them are readily available, and this work is not intended to duplicate easily obtainable material.

As it covers mainly the "civilian" or "peace officer" type of arms, police officers, auxiliary police, Coast Guard auxiliaries, auxiliary firemen, plant guards and civilians who have occasion to use firearms should find in it much of interest and value.

References throughout are to State Guards and State-guardsmen as they will form the largest individual group of users under present circumstances, but a large part of the material included will apply to any organization whose duties include defending our communities from attack or maintaining the civil peace.

As President Wilson said during the last war, "We are confronted with facts and not theory." We must take what we have, both in men and equipment, and get the most and the best out of it. Several months' study of this manual will not make a man the winner of the Wimbledon Long Range Target Match, Pistol Champion of the United States, or an Olympic Team Fencer, but it is sincerely hoped that a few days' study will give him a better knowledge and ability to use whatever equipment he may obtain under present circumstances for the defense of the community in which he lives.

Chapter 1

PROBLEMS AND POSSIBILITIES

STATE GUARDS and similar organizations under present conditions may, to a certain extent, be classed among the orphans of war.

They have taken the place of the National Guard which is now a part of the regular army. They are made up, for the most part, of men exempted for one reason or another from regular military service. They must be recruited from the ranks of men whose regular business occupies a large percentage of their time, men who, in most cases, have had no previous military experience. They must compete for membership with all the other defense organizations which are so necessary at the present time, such as the air-raid wardens, Red Cross, auxiliary police, etc.

Although the conditions which confront State Guard units necessarily vary from state to state and community to community, their duties may run all the way from police-type guard work and the control of civil disturbance to actual battle with military invasion forces.

Thus the State Guardsman *may* never have to do anything more than sit up all night and listen to the frogs in the local reservoir. But he certainly *should* be able to cope with riots firmly enough to prevent unnecessary bloodshed or meet an invader in a delaying action with sufficient knowledge of

guerrilla or Commando-type tactics and sufficient arms and training in the use of them to hold the invader to a minimum advance until additional force can be brought to bear.

To all these problems is added the further one, that the great majority of weapons of the best and latest military types in this country must go to the soldiers of the United Nations who are engaged in or training for actual battle on the various battle fronts of the world. And with those weapons must go most of the ammunition available or being manufactured for them.

While the arms manufacturers of America are doing a colossal production job, there is still no surplus of most military small arms for the, at present, less important work of local defense groups. Nor is there any surplus of ammunition for either practice or regular supply for these groups. This situation may improve if production meets and surpasses requirements, but in the meantime need for equipment may arise. The Government is meeting the situation by the issue to State Guard troops of 12-gage shotguns of various types and a small number of two types of submachine guns manufactured in this country, accompanied by limited supplies of shotgun cartridges loaded with 00 buckshot and .45 caliber automatic pistol cartridges for the submachine guns.

This equipment presumes that most State Guard activity will be in connection with civil disturbances, plant riots, street fighting in towns and cities and similar types of engagement where short-range weapons like shotguns and submachine guns are most effective.

It is always possible, however, that a State Guard unit

may be faced with a situation in which a shotgun or a limited-range submachine gun is not the ideal answer. For this reason, if for no other, it seems desirable to attempt to borrow or acquire, by every possible means, all rifles of reasonable power and any additional shotguns of better quality or greater capacity than those issued by the Government. Many State Guard organizations are now doing this. Aside from the benefit accruing to the individual unit which follows this policy, there is a larger reason. Weapons so borrowed will replace issued weapons and allow the issued weapons to go to less fortunate State Guard companies which are unable to borrow weapons from their local communities.

In general it may be said that the American citizen, and especially the rural American citizen, has always owned and used sporting firearms. Hunting, in one form or another, is probably more popular in America than it is in any country in the world, and hunting is perforce done with firearms which are as capable of killing enemy soldiers as they are of killing game birds and beasts. The average State Guard unit in a rural, semi-rural or suburban community has, therefore, a very good chance of borrowing sufficient weapons to arm itself completely.

A further source of weapons available at the present time are those left over from World War I. Frequently these are in the hands of veterans now too old to fight again, men who are, in many cases, members of the present State Guard or wholeheartedly in support of it. The average American Legion Post has a number of military rifles of some type, and individual members of the post or individuals throughout the town may have World War I rifles brought home or acquired as relics which are still far from the relic stage

as far as practical shooting is concerned. Old ammunition is better than no ammunition, especially for practice, and a surprising amount of it may be located by a careful search.

In general, the small arms equipment to find for State Guard use, in the order of its desirability, is as follows:

1. United States military rifles of World War I. There are two of these: the Springfield rifle, model 1903, and the United States rifle, model 1917, commonly called the Enfield. These rifles are still being used in World War II, but some individuals may own them or they may be part of Legion equipment and be available for State Guard use.

2. Heavy bolt-action sporting rifles chambered for the standard Government .30—06 ammunition. Such weapons are equal in every respect and in some cases superior to the standard military rifles of the present day.

3. Modern foreign military rifles such as the German 7.9 mm. Mauser, or the British Enfield, caliber .303. These again may be held as souvenirs of the last war and may well be in good condition, although a trifle rusted from hanging on the wall. If ammunition is available, they make very satisfactory weapons and, of course, are still in use throughout Europe.

4. Another United States rifle which during World War I was in the hands of many State Guard organizations is the Krag-Jörgensen, models 1892 to 1898, or, as it is commonly called, the ".30 Army." This rifle uses a rimmed cartridge of somewhat less power than the present .30—06, but is very effective at ranges of 600 yards or less. These were commonly sold throughout the country twenty-odd years ago for three or four dollars apiece, and many of them are still around, some altered to sporting rifles and

others in their original military form. They are very desirable for State Guard use under the present circumstances.

5. Hunting rifles of medium or high power. There are a great many rifles in the deer-hunting class in both bolt- and lever-action models using cartridges having an effective range between 300 and 700 yards. There are also several automatic rifles of medium power that have been made for hunting purposes for the last thirty-odd years which are very effective. These various types of rifles in non-United States military calibers run from such popular hunting cartridges as the .270 Winchester, .250—3000 Savage, .348 Winchester, down to the older hunting cartridges, .38—40, and .44—40, or the automatic rifle cartridges, .30, .32, .35, .351 auto, etc. They will all increase the range of the activities of a company far beyond the possibilities of a shotgun for accurate fire.

6. While it is an obsolete weapon, as far as any regular military use is concerned, the old .45—70 Springfield single-shot United States rifle, in use from 1873 to the time of the Spanish-American War, is still an effective weapon. It had in its day, a range of nearly 1000 yards. The 500-grain bullet backed by 70 grains of powder, while it was slow and the trajectory was high, was an effective man-stopping load at extremely long ranges. It was also reasonably accurate, if the range was known. The .45—70 was standard issue for State Guards in World War I.

In this same class are also the various foreign military rifles of the same period, always assuming there is some ammunition to go with them. Among them may be mentioned the Swiss Vetterli, which is fairly common in this country in a .41 caliber rim-fire, repeating type, the English

Martini-Henry .577—.450, and the German model 1871 single-shot 11 mm. bolt-action Mauser rifle.

7. This class would include any single-shot sporting or target rifle of the past fifty or sixty years which is in good enough condition to shoot and of an effective caliber to give reasonable range. There were many of these single-shot hunting rifles made up to and including the late nineties in calibers from .32—20 to .45—70 and .45—90, which make very effective weapons today.

Most of the shotguns issued to State Guard units are either single- or double-barreled guns of medium quality and 12 gage, so that the search should also endeavor to bring to light any shotgun better adapted to military use than the issued weapon. There are a number of types of repeating and automatic shotguns which have been fairly popular and common in this country for many years. Any one of these is better than a single- or double-barreled gun for military use for a number of reasons. Double-barreled guns of better grade will probably be easier to use, more completely broken in and consequently more desirable than issued guns—as well as having the virtue of releasing issued guns for other uses.

Shotguns of other than 12 gage are perfectly practicable to use if there is any heavy loaded ammunition available. Sixteen- and 20-gage guns will take a fairly heavy load of shot somewhat smaller than buckshot and can be used effectively. Ten-gage guns, if buckshot cartridges are available, are more powerful than 12 gage but they also kick and weigh more. Wherever possible stick to 12-gage guns, but in the case of particularly good weapons, don't turn down

one in a gage approaching 12, as all these guns are reasonably effective.

The same search should be made for sufficient pistols and revolvers to arm noncommissioned officers, and, if it is deemed advisable to plan on something approaching Commando or guerrilla tactics, it would not be amiss for every man in the company to have, and be familiar with, a hand or belt gun in case he was in a position where he could not use his rifle. Here again handguns may be divided into classes by their desirability.

First, of course, comes the .45 automatic pistol, U. S. Government model 1911, which is the official side arm of the United States forces. These are also relic weapons of World War I and may often be found in the hands of returned soldiers as may, also, many foreign military pistols such as the 9 mm. Mauser and Luger of the Germans, and occasionally a 9 mm. Austrian Steyr-Mannlicher. These are all powerful automatic pistols, effective and well-made weapons.

In side-arm class 2 might be placed any Colt or Smith and Wesson revolver chambered for the .45 automatic pistol cartridge. Both of these revolvers were made at the time of World War I and listed as U. S. revolvers, caliber .45, model 1917.

Side-arm class 3 would include all other Colt or Smith and Wesson revolvers chambered for cartridges of .38 special caliber or over, up to and including the standard .45 Colt revolver cartridge as distinct from the automatic pistol cartridge. Both Colt and Smith and Wesson have made revolver models for the last fifty-odd years which are satis-

factory and fall into this class. These include the Colt single-action Army model 1873 which has been manufactured with but little change since that date to the present.

Several military model .38 caliber and a number of military model .44 caliber revolvers have been made by both companies. In this class also should be placed the various model Colt automatic pistols of military type and .38 caliber which were made between 1900 and 1928 but never used as military weapons in this country although the cartridges were powerful ones. Also the Colt Super .38 automatic.

In class 4, among side arms, would fall the lighter frame Colt and Smith and Wesson revolvers of .38 caliber new police, .32 caliber and the Colt pocket automatics in .32 and .380 caliber. This last group of definitely light weapons, except for concealment or pocket use, should give way to any weapon in the heavier category that can be obtained. However, they will all do an effective job under reasonable conditions and should by no means be turned down if nothing more powerful is obtainable.

Insofar as possible it is advisable to stick to Colt and Smith and Wesson arms as far as pistols and revolvers made in this country are concerned. Other good revolvers have been made here, but there are many poorer quality weapons also. Anything made by Colt or Smith and Wesson is sure to be good and very reliable.

Ammunition for all small arms should be sought after as eagerly as the weapons themselves. There are a number of ways of augmenting issued supplies. The standard military load for shotgun shells, as issued, is 00 buckshot. But a canvass of the average town will turn up a considerable quantity of 12-gage shotgun shells loaded with all sizes and

types of shot. These should be sorted and the heavier shot retained for close-range riot work. It is still possible to obtain buckshot from some of the larger lead companies, and with it, any 12-gage cartridge can be very readily converted to a buckshot load. It is only necessary to unfold the crimp of the shell, lift out the wad, shake out the small shot, replace it with nine 00 buckshot, and put the wad back into place. The crimp of the shell can be turned in by hand or a standard shotgun crimping tool may be found somewhere in town which will handle a great many shells in the course of an evening.

It is also advisable to try to get at least a limited supply of cartridges for every rifle or pistol that is borrowed. Never turn a rifle down for lack of ammunition until you are sure that none can be obtained from any other source. But try to get ammunition with a gun whenever possible. We give herewith a reproduction of a form letter sent out by one State Guard company asking the citizens of its town to lend rifles, and a form of receipt and acceptance for rifles and ammunition received which another company is using at the present time.

Assuming that everyone has made his best effort to obtain any and all suitable weapons, we will now consider that our State Guard company has in its ranks the single- and double-shotguns and Thompson or Reising submachine guns issued to it by the State, a few rifles of good military type (Springfield, Model 1917, etc.) a scattering of rifles of the various other types mentioned, plus a number of shotguns of better grade or cartridge capacity than the standard issue, and enough pistols and revolvers for arming the officers, non-coms and special weapons squad. A number of problems

then arise. What shall the company do with them? What are their potentialities in range and accuracy? How can careful and efficient users of firearms be made out of men who have been plumbers and bank presidents? And how—above all—be sure that no accident occurs in the course of training, guard duty or maneuvers?

THIS LETTER HAS BEEN USED IN SOLICITING GUNS

Dear Sir:

You indicated your interest in this organization when it was formed early in 1941. For a year and one-half the Unit has trained faithfully: weekly drills, bi-monthly non-com schools, Sunday maneuvers, range practice, week-end camps, nightly guard duty at the Armory, and a tour of active guard duty for six days after December 11th.

We face a situation now in which you can help us again. The War Department has ordered us to turn in our rifles. In their place we are being issued Thompson submachine guns and single- and double-barrel shotguns. It is undoubtedly true that these weapons may be better than rifles for some missions that the State Guard might be called upon to perform, but Tommy guns and shotguns are only effective at a very short range. It seems imperative, therefore, that we should have some rifles in the Unit.

Our arms are being sent where they are more urgently needed at this moment. If the citizens of the town have arms that we could use, it seems reasonable that they should loan them to us for the duration.

They will receive the best of care. The soldier is continually trained in this. We have a patented hot oil bath which removes all rust and keeps arms in good condition. We cannot of course give any guarantees, but we hope they may be returned safely to the lenders when it is over. The loaning of your arms will not only be a definite contribution to local defense, but will

alleviate to some extent the disappointment to the men in parting with the guns that they have been training with for a year and one-half. Standing in a closet they benefit no one but the enemy.

Will you let us know what you have to loan and ask your friends and neighbors.

The following is what we would like, but let us know about any equipment that is available.

1—Springfield or Enfield Military Rifles or Hunting Rifles that will take .30 caliber service ammunition.
2—Hunting Rifle of other caliber if ammunition is available or can be purchased.
3—Twelve-gage pump shotguns.
4—Revolvers and automatics .32 caliber and over.
5—.22 caliber rifles (for fire control practice).
6—Extra clips for automatic pistols and rifles.
7—*Ammunition:* The State furnishes us with very little. Many Units of the Guard are buying their own.

We would welcome contributions to a fund to purchase a supply to be held in reserve for an emergency. Some of our members have bought their own, but we can't ask them all to.

We also have need for the following:

Field glasses.

Compasses (prismatic or with radiolite markers).

We still need recruits: both as active members and for our reserves.

It is hoped that others may become sufficiently interested in this problem to offer to form a committee to help us with it.

Sincerely yours,

FORM FOR RECORDING BORROWED GUNS

NAME.....

ADDRESS.....

I hereby agree to loan 1 rifle..... shotgun.....

Make.....Model.....

Caliber.....Gage.....Maker's number.....

to.....

of the ..... Company ..... State Guard,

..... until the Governor shall declare the War Emergency to be terminated.

I understand that good care will be taken of this gun but realize the possibility that the gun will be used in military action and may be damaged or lost and I agree not to hold the borrower nor the ..... Company ..... S. G. responsible for damages or replacement.

I have ..... cartridges for this gun which I will give to the Company.

Signed.....

Gun received by ..... Date.....

Rank.....

..... Company ..... State Guard

Name of Lender.....

Make of Gun.....

Chapter 2

GENERAL INSTRUCTION

SAFETY MEASURES

STATE GUARD companies are in a particularly vulnerable position in the matter of the safe handling of their firearms. They are always in and a part of the community where they live. They must handle their firearms not only in the presence of each other, but in the presence of their friends and fellow citizens. They are always in the position of requiring aids of various sorts from the townspeople and the town government. It is the worst possible advertising if a firearms accident occurs in such a company. Men will drop out, others who would have joined will not, and civic aid that might readily be given will be withheld, if someone is badly wounded or killed as a result of carelessness in the handling of weapons in a place where everyone knows what everyone else is doing.

The possibility that there will be the need for the effective use of weapons on an enemy is, of course, always in the background of the situation. But the obvious fact that the weapons are being handled in the presence of everyone in town is always definitely in the foreground. Safety should come first and training for accuracy second.

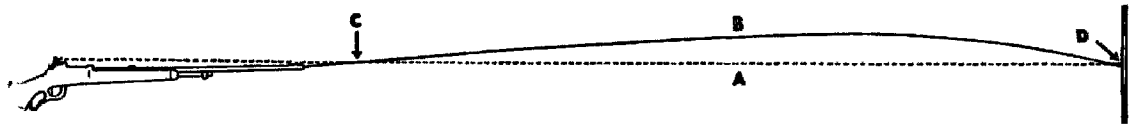
Having collected a sufficient assortment of weapons, some

issued and some gathered from any and all sources, the first thing to do is to make sure that each weapon to be used is, in itself, safe. In other words, that it is not of such poor quality or so badly worn that proper handling of it will cause an accident merely from some mechanical failure. There should be at least one member of the community who is reasonably familiar with firearms of most types. Sometimes local police officers can be of assistance, or if there is a near-by army post it is always possible to obtain someone familiar with ordnance for long enough to make an inspection.

Assuming that the weapons are adequate and of reasonable quality and condition, the next thing is to be sure that every man who is issued a given weapon knows just how it works—at least to the extent of knowing its safety features. All teaching should stress first and foremost that the breach or action of all weapons should be opened whenever possible when the guns are being handled or inspected. A weapon with its breech open and its chamber clear CANNOT go off. A weapon with its breech closed MAY be loaded and MAY go off.

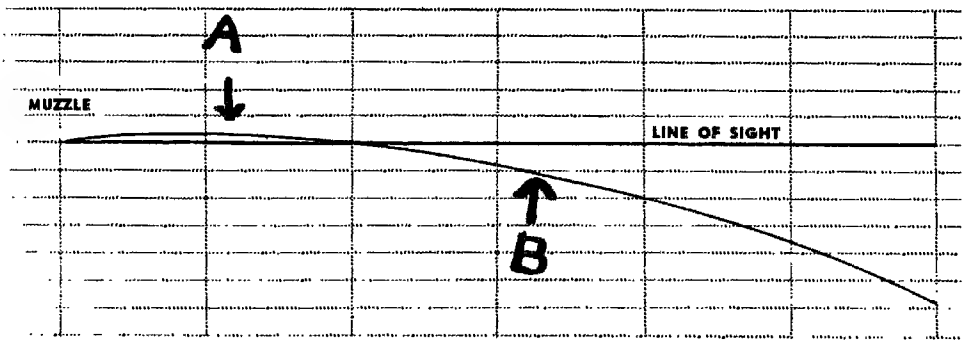
The individual peculiarities of each type of weapon should be explained to the man who is to use that weapon, and he should be made to explain them in turn to the instructor to make sure that he has understood what he has been told. It should be stressed that in case of guard duty before further training, except under extreme conditions, no cartridges should be in the chamber of any weapon. Repeating weapons should be loaded in the magazine, but not in the chamber. Unless something of a very extreme nature is expected, and unless the guard is well away from public contact, even a

single-shot weapon is safer unloaded as it can be loaded from the belt or pocket in a few seconds if it seems necessary. The effective range and the extreme carrying range of each weapon should be explained thoroughly to the man who



THE TRAJECTORY OF A BULLET

CAD,—line of sight
CBD,—actual curve of trajectory
D,—point of aim and point of impact coinciding.



DANGEROUS AREA

This Chart shows the trajectory of a bullet passing above the line of sight, meeting it, and passing below it. The dangerous area of any given load is that area in which point A, the highest point in the trajectory, is not more than 25 inches above the line of sight, plus the distance inside of which the point B is not more than 25 inches below the line of sight.

This definition of dangerous area applies to the battle sighting of a given rifle and cartridge. Any cartridge is, of course, "dangerous" to its extreme range, but inside the area indicated any man-sized target will be hit without change of sight setting if the middle of the mark is aimed at.

carries it, together with general suggestions about shooting against a paved street, into water, or against light frame buildings and other seemingly harmless, but actually very dangerous, practices, in the presence of a civilian population.

In connection with the explanation of the effective and extreme ranges of the various weapons, the "dangerous area" chart can be drawn on a blackboard to illustrate the trajectory of a bullet and what should be expected from battle-sights. The extreme range of all weapons should be stressed particularly at this point as many people do not realize how far even a revolver bullet will carry. It may here be pointed out that one youth has been killed by another as far away as 636 yards with a .22 short in an accidental shooting. An average rifle bullet will carry from a mile to three miles if the rifle fired is held at an angle of approximately 35 degrees.

All target ranges should be posted with standard safety rules and all ranges should be conducted in accordance with the best safety practices for standard civilian or military ranges. The simplest and commonest of these is that no firearm is loaded except by command of the range officer and while it is on the firing line pointed toward the target. While arms are not on the firing line they should have the breech opened and be handled as little as possible except for instruction purposes well to one side of the firing line.

SHOOTING INSTRUCTION

Rifle and shotgun practice under present conditions will of necessity be of a relatively limited nature. Shooting practice should be organized with the noncommissioned officers most familiar with firearms as range officers and

coaches. If it is possible, most of the shooting should be done with .22 caliber weapons.

Here again it is advisable to borrow all possible .22 caliber rifles of reasonably close to target type for practice shooting as well as to obtain any .22 caliber ammunition of any size that is available. These rifles will vary from heavy target rifles of Remington, Winchester and other makes, down to the lighter weight bolt-action single-shot plinking rifles. If possible it is advisable to obtain some of the lever-action .22 rifles for practice and familiarizing the men with the lever action in case there are some heavy caliber rifles of this sort in the organization. There is also a miniature skeet, shot with .22 caliber cartridges, small smooth-bore .22 caliber weapons of the shotgun type, and miniature clay pigeons, which is very good practice for shotgun shooting. This can be used in a relatively small area, as the very fine shot does not carry an appreciable distance. There are many good books available on .22 and larger caliber military and target rifle shooting. It is advisable to work from these with reasonable adaptation to the problem at hand.

There will be neither time nor ammunition to make small-bore champion target shots or skeet shooters out of State Guardsmen, nor is there the need. The small-bore target for 50 and 75 feet presents a bull's-eye not much larger than a lead pencil at the maximum. This is a very discouraging target for a shooter to begin on, or to shoot on, if he has a limited supply of ammunition. For the purposes of State Guard training, it is far better to use some larger type.

There are several such targets available: the 25-yard standard American pistol target carries a generous-sized bull, but sufficient scoring rings so that some competition

can be established. The silhouette type target showing the form of a man, such as the Colt silhouette target, or the New England Police Revolver League V-Defense target gives the added incentive of shooting at a man-type mark, and noting where the bullets hit. It can be used on indoor ranges at short distance as well as outdoors.

The ideal, of course, is to turn out every shooter so that he can handle every kind of weapon safely and hit a 20-inch bull's-eye at 1000 yards. The practical is to do as much as possible with the material, men, arms, and ammunition that is on hand. This can best be done by keeping up interest and not discouraging shooters by trying to do the impossible.

In general, get one or more good books on military and target-type shooting, keep your targets big, especially at first, *insist* that the safety rules be followed absolutely, and approach target shooting and marksmanship procedure as closely as possible under the circumstances.

If an outdoor range is available, it may be possible to simulate actual combat targets by setting up small silhouettes or representations of trucks, tanks, artillery, etc., reduced so that at 50 or 100 yards they will appear as they might if they were actually 3 to 500 yards away. Simulate fire under battle conditions, making the shooters take cover and shoot at objects partly concealed by the surrounding terrain and foliage.

This is war and every individual should, of course, do as he is told because he is told to do so, if he is a part of any military organization. But, particularly in units of the State Guard type, a man will certainly do things better if his interest in them is kept up as well as it can be. The more varied the type of shooting that can be offered, the more

interest will be maintained. To anyone except the dyed-in-the-wool small-bore shot, punching holes in an infinitesimal bull's-eye under very artificial conditions probably loses attractiveness fairly rapidly. Vary this as much as possible at all times as soon as the men show a reasonable familiarity with the rifles they are using.

If a man is not progressing, check back over the standard instructions procedure and make sure that he has understood all that has been told him, particularly about sight alignment and trigger squeeze. These two features seem to be the most bewildering of the many things that a man must learn, to become a reasonable target shot. Any of the mechanical aids to instruction such as sighting bars or other equipment that are recommended by standard works on military instruction, and can be obtained, will be a help in this respect. A list of standard books on the subject of target shooting and military instruction will be found in the *Bibliography*.

Chapter 3

MILITARY TYPE RIFLES

GENERAL CHARACTERISTICS

WITH THE exception of the Garand, or M1, and Johnson semi-automatic rifles, the military rifles of the nations of the world, at present and for the past fifty years or so, have been bolt-action repeating rifles using bottle-necked cartridges with metal-jacketed bullets of .25 to .32 caliber giving muzzle velocities between 2500 and 3000 feet per second. The great majority of these rifles fall into two types: the Mauser, invented by Paul Mauser of Germany; and the Mannlicher, invented in Austria. Both rifles were developed in the early 1890's.

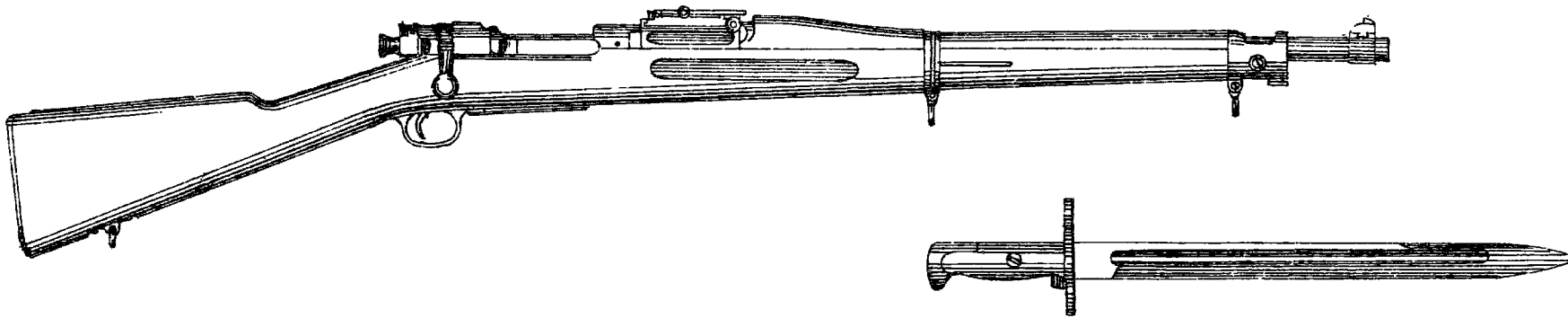
The Mauser action, which is in use by a great many countries, including the United States, where it is the basis for our model 1903 Springfield, is a repeating rifle taking a clip of cartridges into the magazine vertically downward, parallel to the path of the bolt. It can be loaded only while the bolt is open. The clip fits into clip guides in the receiver, and the cartridges are stripped from the clip into the magazine by a single pressure of the thumb. The cartridges are pushed into the chamber one at a time by pushing forward on the handle of the bolt, which is similar in general to the bolt on any common door. The bolt has lugs at its forward

end, which, when it is turned down, lock into the recesses of the receiver and form a support for the base of a cartridge during the explosion. After the cartridge has been fired, the handle of the bolt is turned up and the bolt is pulled back. This throws out the empty shell and allows the magazine spring to press another cartridge up so that the top of its base is in the path of the bolt and it in turn can be driven forward into the chamber.

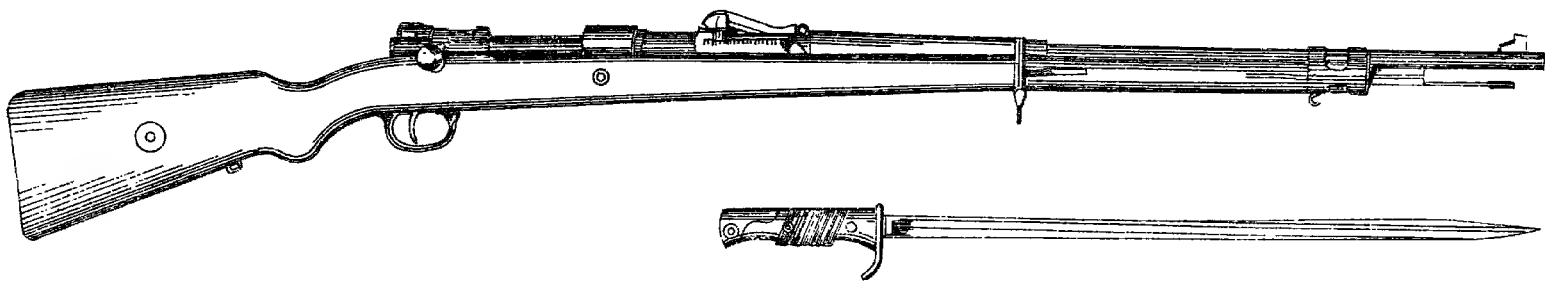
The firing-pin or striker is a straight-drive pin traveling through the center of the bolt to strike the primer of the cartridge as it rests against the face of the bolt head. The pin is impelled by a spiral spring which is usually around the pin in the hollowed-out center of the bolt. As the bolt is opened or closed, the spring is compressed and the pin held back by the trigger or sear, engaging in a notch in the pin. When the trigger is pulled, the pin drives forward to strike the primer of the cartridge. Some firing-pins have a knob outside the back end of the bolt so that they can be cocked or let down by the thumb and forefinger of the firing hand.

The various types of safeties applied to bolt-action rifles lock the firing-pin out of engagement with the trigger and sear so that pulling the trigger will not release the pin. There is no half-cock point on any straight-drive firing-pin for military bolt-action rifles. All pins are automatically cocked when the bolt is closed and locked.

This is one of the very good reasons for leaving the chamber of a bolt-action repeating rifle empty with the cartridges retained in the magazine except when the rifle is to be fired. Lowering the pin by hand with a cartridge in the chamber is not very satisfactory, as in some cases the shape of the rear end is such that it cannot be reached any-



UNITED STATES RIFLE, CALIBER .30 MODEL 1903



GERMAN MAUSER, MODEL 1898

way, and, if it is lowered, the point of the pin rests on the cartridge where a jar might fire it. Then, too, it is relatively awkward to pull back or cock a straight-drive firing-pin in a hurry.

Some of the bolt-action rifles have a magazine cut-off, which, when in use, holds the cartridges in the magazine in reserve and allows the rifle to be loaded and fired as a single-loader with cartridges remaining in the magazine for use when they are wanted. This cut-off usually is situated on the left-hand side of the receiver and near its rear end.

THE SPRINGFIELD 1903 AND MAUSER RIFLES

To describe briefly our most familiar examples of this type weapon: the Springfield model 1903 holds five cartridges loaded from a small clip surrounding the heads of the shells only. The Springfield model 1903 rifle is 43 and a fraction inches long over-all with a 24-inch barrel and a weight of 8.69 pounds. Its safety is at the rear of the bolt and throws from side to side. This rifle is typical of the group of Mauser-type bolt-action rifles in use the world over.

The German military rifle of the present day is the model 1898 Mauser, using a 7.92 mm. rimless cartridge similar in design to the American cartridge but different in size and shape. Great care should be taken, when a Mauser rifle is encountered, to be sure that any ammunition available for it is the correct German military 7.92 mm. Mauser ammunition. This Mauser rifle is commonly called an "8 mm." Mauser—a somewhat misleading description, as there are other foreign 8 mm. cartridges which are not correct for this rifle and which may cause an unfortunate accident if they are used with it.

Other Mauser rifles in 7 mm. caliber are used in Spain and in Mexico and throughout a number of the South American republics. These rifles are similar in general characteristics and in action to the standard Mauser or the United States Springfield. They are usually clip-loaded and use ammunition of military characteristics. The Japanese Arisaka "year 38" is basically the 6.5 mm. Mauser, model 1907.

THE U. S. RIFLE MODEL 1917

The other official U. S. bolt-action rifle is the U. S. rifle, caliber .30, model 1917. This rifle was originally developed by the British before World War I and was, as soon as it could be put into production, to replace the Short Model Lee-Enfield, which had been the standard British arm for some years. But World War I ended that possibility as far as England was concerned.

England, however, placed contracts in this country for great quantities of rifles and, as it was necessary to start from the beginning, they chose a modified form of the new rifle designed to take their standard .303 rimmed ammunition. The new rifle had been planned to take a smaller caliber rimless cartridge, but it was thought inadvisable to have two cartridges in service at the same time so the new rifle was modified for the old cartridge and large numbers of them were manufactured in this country by Winchester, Remington, and Eddystone for the British.

At the time we entered the war in 1917, most of these contracts had or were about to expire and the United States Government needed rifles in quantities. Therefore, it was deemed simpler to reconvert the new Enfield model to a rimless cartridge for United States service, chambering it

for the standard U. S. ball cartridge, caliber .30, model 1906, which was and is the standard United States small arms cartridge.

This rifle, originally designed for a rimless, redesigned for a rim case, and converted back to rimless cartridge, became known as the U. S. Rifle, caliber .30, model 1917. It was made to the number of several million guns between 1917 and November 11, 1918. Many are in use today in the fighting services but there are also some privately owned throughout the country as they were sold by the Director of Civilian Marksmanship after World War I through the National Rifle Association.

The action is similar to the Springfield in its basic principle, but there are some features which are different. The safety on the model 1917 is located on the right side of the rear end of the receiver and pushes forward and back. The safeties of all military bolt-action rifles are in a position where they can be reached by the thumb of the shooting hand of the user, but this placement allows some latitude as to the exact position.

The sight of the model 1917 rifle is on the rear of the receiver instead of forward of the receiver on the barrel as in the Springfield. The battle-sight is a peep instead of an open sight. The rifling is the British left-hand twist instead of the 4-groove, 10-inch right-hand twist of the Springfield. The bore diameters are the same. This rifle is loaded either singly or from the standard Springfield clip with regular U. S. military ammunition. It loads from the top of the action past the bolt path in the usual way.

The United States military rifles, and foreign weapons of similar ballistic characteristics, are "battle"-sighted for

400 to 550 yards, giving them a "dangerous area" of 550 to about 630 yards.

The term "dangerous area" means a distance in which a bullet fired from a rifle aimed at the belt buckle of a standing man will neither pass over his head nor fall short of his feet. Depending on the trajectory of the rifle, this distance varies from 250 yards in old-fashioned weapons to 600 to 650 yards in the best modern weapons.

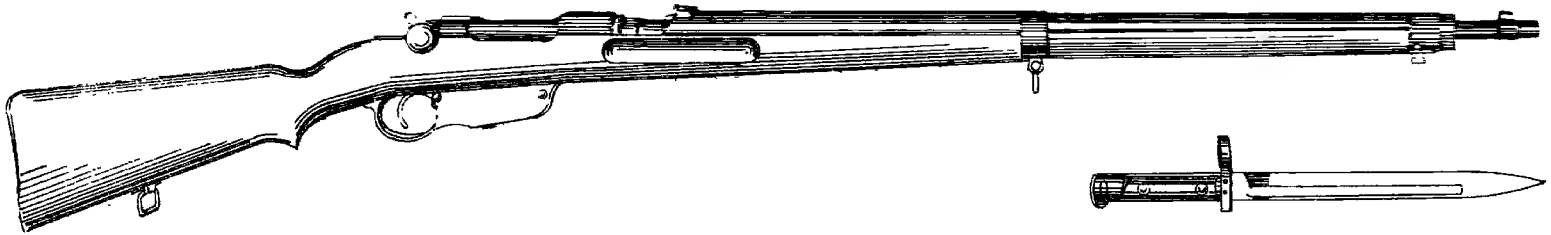
The highest point of trajectory of any bullet is just beyond mid-range. The dangerous area is an area in which the trajectory of a bullet is not higher at any point along it than some 20 to 25 inches, plus the distance beyond the point of aim at which the bullet does not fall more than another 25 or 30 inches below the point of aim.

In the case of the Springfield rifle and .30—06 ammunition, this is about 500 yards between the rifle and target and about 125 yards beyond the target. Other rifles approach this in varying degrees, depending upon their ballistic approach to the .30—06 ammunition.

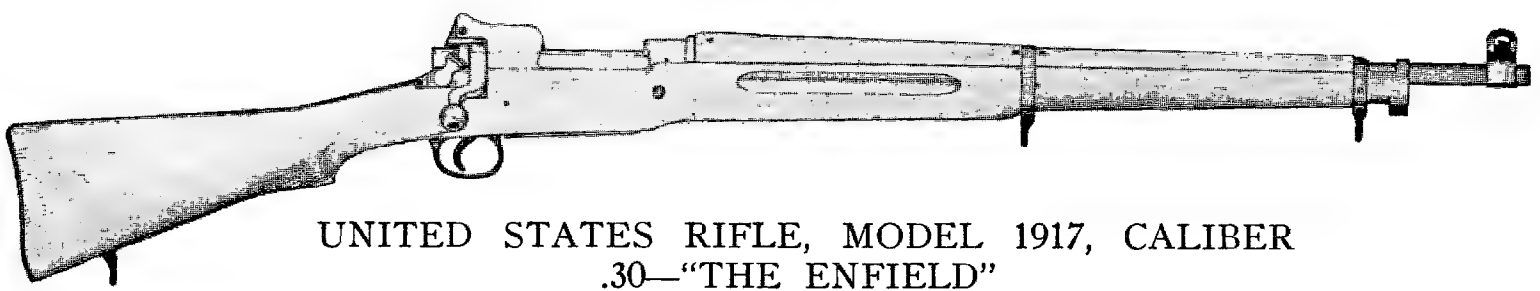
For general guard purposes and except in actual battle, all bolt-action rifles should be carried and the bolt closed on the empty chamber and five shots in the magazine. The safeties may be brushed off in handling, and a shot might be fired accidentally. It takes very little time to work the bolt and place the cartridge in the chamber when necessary.

MANNLICHER RIFLES

The second large group of military rifles in use at the present time is based on the Mannlicher action. This has a bolt action similar to the Mauser, but it receives its cartridges in a clip which remains in the action until the last



MANNLICHER RIFLE, MODEL 1895



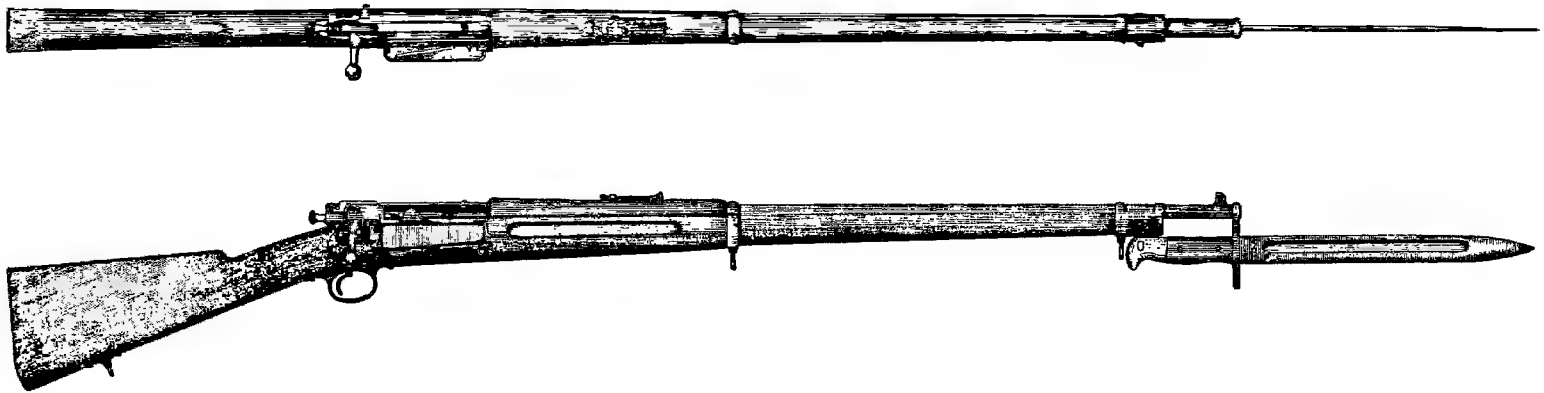
UNITED STATES RIFLE, MODEL 1917, CALIBER .30—"THE ENFIELD"

cartridge has been fired. The clip then drops out through the bottom of the action. This clip or charger has sides which come down about half the length of the cartridge case in its large section. Otherwise the Mannlicher rifles are the same as the Mauser rifles, as far as the operator is concerned. The bolt can be closed on an empty chamber with the magazine loaded. A safety of some type is located within thumb-reaching distance of the firing hand and the ammunition is of standard military type and power.

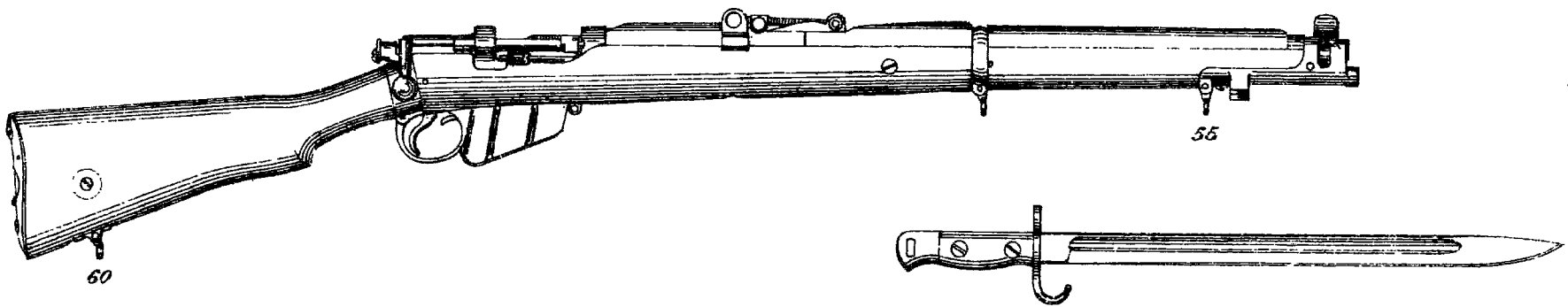
THE S.M.L-E.

There are in use at the present time a few bolt-action rifles which do not partake very closely of either the Mauser or Mannlicher actions. The English Short Model Lee-Enfield and its preceding models of similar type form one example of this group. The Lee-Enfield is a bolt-action rifle with a safety in the usual position at the rear of the bolt, but it loads through the action with two five-shot clips for a total of ten shots in the magazine. The locking lugs on the bolt are placed further back than is common with other rifles, and the receiver goes entirely through the stock with the butt stock being attached to the back end of it by a bolt passing through the butt from the grip to the butt plate.

The English Short Model Lee-Enfield uses a type of ammunition designated as .303 British. This is still the rimmed case which was used before the war with a bullet approximately the diameter of the U. S. service ammunition but weighing slightly more. It uses a peculiar type of British powder called Cordite and has a muzzle velocity somewhat less than that of the U. S. cartridge. Its battle-sight and dangerous area are slightly less than those of the .30—06.



UNITED STATES MAGAZINE RIFLE, MODEL 1895, CALIBER .30—"THE KRAG"



ENGLISH SHORT MODEL LEE-ENFIELD (MARK III)

THE KRAG-JORGENSEN

Another military rifle that was in use at one time in the U. S. and is still used in some of the Nordic countries is the Krag-Jorgensen. This was manufactured at Springfield Armory from 1892 until the development of the Model 1903 Springfield.

It was the regular army issue rifle with which the Spanish-American War was fought. The Krag-Jorgensen is a bolt-action rifle with a very smooth and pleasant turning-bolt action. Its safety is on the back of the bolt in a very convenient position. The "Krag" rifle uses a rimmed .30 caliber cartridge somewhat similar to the British .303 in general appearance, but in its original military form is made with a round-pointed bullet of 220 grains. This cartridge is variously designated as the .30 Krag, .30 Army, and .30—40. The cartridges are not fed into the action by clips as the magazine is peculiar to this rifle. It is a box on the right side of the frame, hinged and dropping open under hand pressure. Five cartridges are inserted singly into the box. They feed below the action and up into the path of the bolt from its left side. With the closing of the box a spring-actuated arm forces the cartridges around into the path of the bolt.

The Krag action is designed for cartridges of somewhat less power than the present U. S. cartridge, as the locking lugs are not as strong as those of the Mauser action, but the cartridge is a very good one for ranges to 600 or 700 yards. A number of models of the Krag were made between 1892 and 1900 in both full length and carbine size.

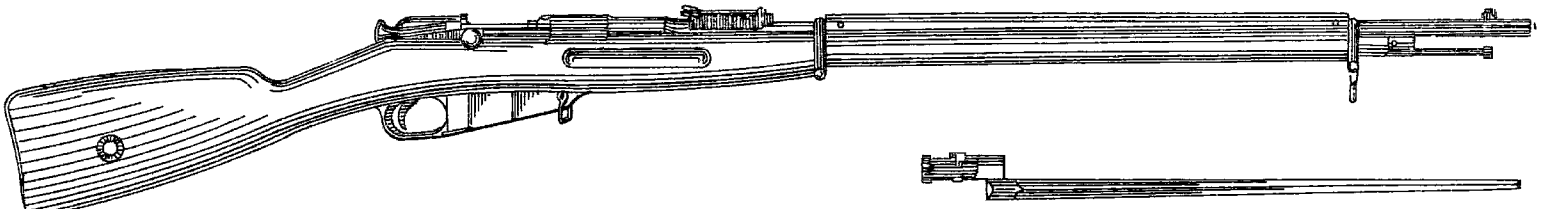
It is still an efficient military arm and with the proper ammunition should answer admirably the purposes of State Guard units. A number of hunting loads as well as the military load have been made for this arm by the arms manufacturers for many years, as it has been a popular hunting rifle both in military models and in sporting types.

THE RUSSIAN REMINGTON

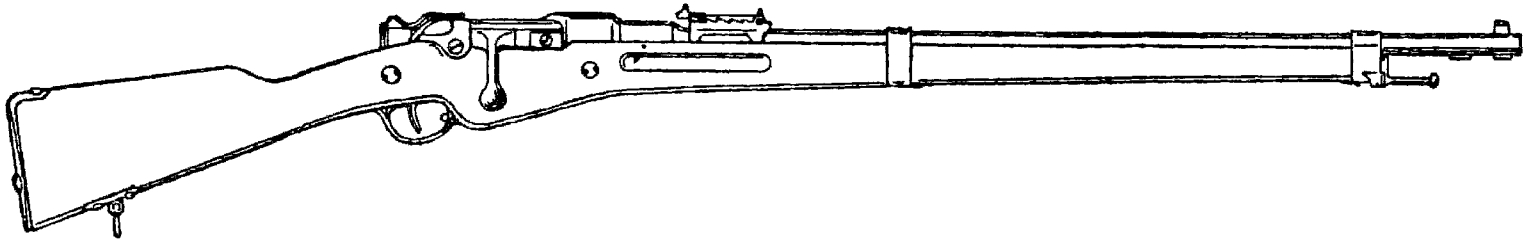
Another rifle made in this country at the time of World War I and still sometimes found here is the so-called Russian Remington. This is the Russian military rifle of World War I period as manufactured in this country on Russian contracts by the Remington Arms Company. The Russian name for this rifle is the Mosin Nagant. It is a turning-bolt rifle with a very large striker head at the back so that it can be cocked or the striker let down readily by hand. The rifle is loaded with single rounds through the action with a rimmed "7.62 mm. Russian Cartridge," also commonly made in this country in hunting and military loads, to the capacity of the magazine which is five.

A great many of these rifles were left in the hands of the Remington Arms Company by the collapse of the Russian monarchy during World War I, and, after the war, they were sold for hunting rifles all over the United States. With their own ammunition they are an excellent military weapon, but they were occasionally altered in manner which, for the sake of safety, must be mentioned.

Some concerns cut off the barrel of this rifle an inch or two at the breech, rechambered it for the standard U. S. caliber .30, model 1906 ammunition, and sold the result for sport-



RUSSIAN REMINGTON, MODEL 1900



FRENCH LEBEL RIFLE

ing purposes to take standard American ammunition. This was a very dangerous procedure. The Russian Remington cartridge was never made with as high a breech pressure as the standard .30—06 in the first place, and the whole action was undoubtedly weakened by the butchering and recutting necessary to chamber it for the .30—06. This makes a dangerous combination, and many of these weapons have blown up in the hands of their users. It is usually apparent that this has been done by the poor fit of the barrel and the woodwork at the point where the barrel and receiver join and by an obvious shortening of the barrel at this point. Any of these Russian Remingtons which will chamber .30—06 ammunition should be discarded as absolutely unsafe for use.

THE LEBEL

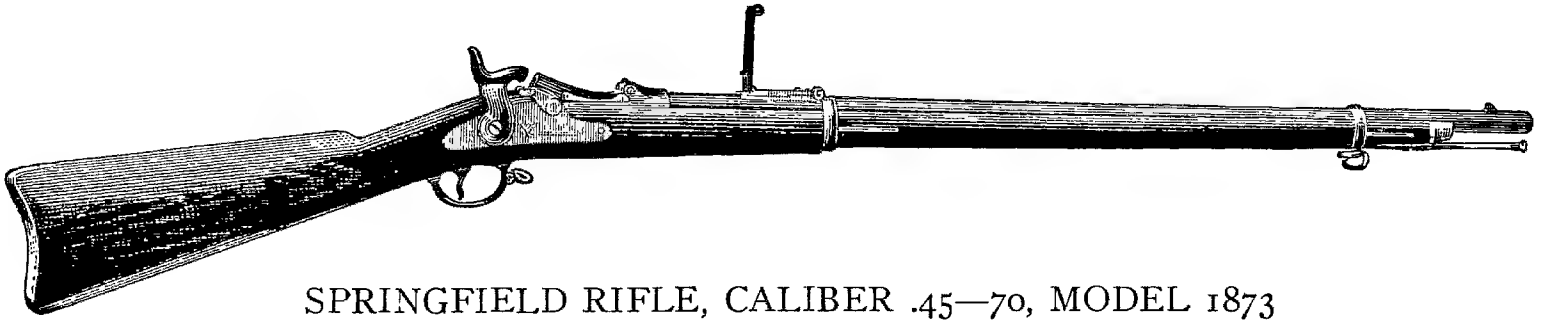
For some reason French military weapons are very scarce in this country. The type in use at the time of the fall of France was the Lebel 8 mm. repeating rifle. This was a bolt-action rifle, taking three cartridges at a time in a clip and using ammunition with a solid bronze bullet and a very short, sharply bottle-necked case. The rifle used a very long, narrow bayonet and was of considerable length over-all. Its type seems to have had very little to recommend it as it has never been used outside France. The dangerous area of the 8 mm. Lebel is that of the higher-powered military rifles of the present-day type. With the sight set between 400 and 500 yards, the dangerous area is something over 500. If a Lebel rifle turns up with accompanying ammunition, by all means use it, although, as stated, it does not seem to be an unduly popular type of arm.

THE .45—70, MODEL 1873

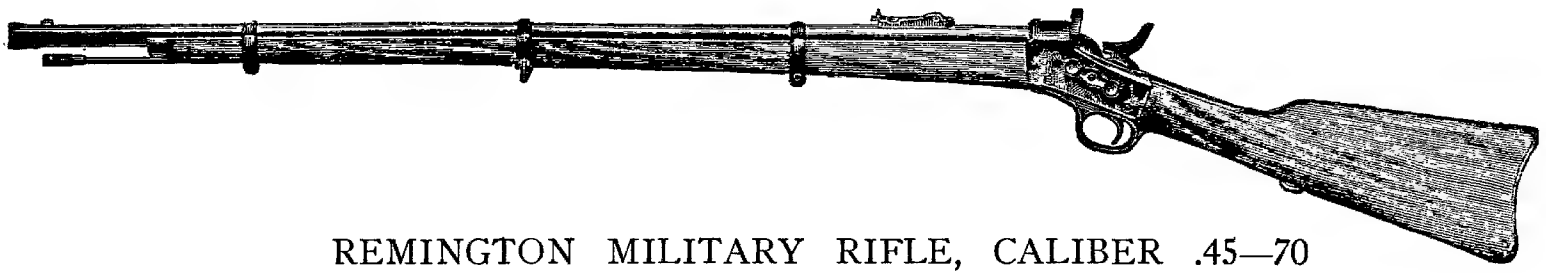
To go even further back in our military arms, the single-shot .45—70 Springfield rifle, which was standard in our services from 1873 until the time of the Spanish-American War, is still prevalent in considerable quantities. It was the standard weapon of the State Guards during World War I and many of these rifles issued at that time are still in the towns to which they were issued. While this rifle is, of course, very old today, it is and was an excellent military weapon within its scope and range. The .45—70 cartridge is a powerful cartridge, shooting a heavy bullet, with an effective range of well over 1000 yards. The limit of its effectiveness is determined more by the high trajectory of the bullet than by its lack of ability to arrive at a given point. The bullet travels at only 1350 feet a second and has a point-blank or dangerous-area range of not over 300 yards, although if the exact range can be determined, accurate shooting can be done with it at three times that distance.

The .45—70, Model 1873 Springfield was a typical single-shot action of its day. The hammer was brought to half-cock and a lever thrown up on the right side of the action which opened a trap door breech, allowing a shell to be placed in the chamber. After the gun had been fired, the act of throwing open the breech again automatically threw out the shell. The gun was made in several models and in carbine sizes as well as full musket lengths.

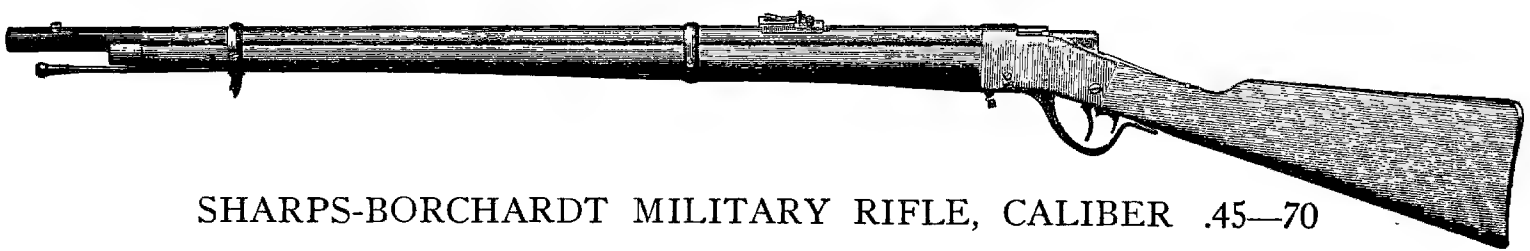
There is no safety on the .45—70, Model 1873 Springfield with the exception of a safety notch intermediate between half-cock and fully-down in which the hammer can be set after the gun has been loaded. This holds the breech



SPRINGFIELD RIFLE, CALIBER .45—70, MODEL 1873



REMINGTON MILITARY RIFLE, CALIBER .45—70



SHARPS-BORCHARDT MILITARY RIFLE, CALIBER .45—70

lever shut and keeps the hammer away from the firing-pin in case the gun is dropped. This is the safest position in which the hammer can be placed when the gun is loaded.

THE VETTERLI

A number of foreign weapons of the same period and the same general type may possibly be met with and are equally effective if they are available. The Swiss Vetterli for some reason seems to be fairly common in this country. This was one of the first of the bolt-action military rifles. It was chambered for a .41 caliber, rim-fire cartridge with about the same ballistics as the .45—70, using an early type bolt action with a magazine under the barrel loaded through a loading gate in the side of the receiver. Ammunition is still manufactured for these rifles by the larger ammunition companies and, when it is obtainable, they may still make an effective combination.

THE SHARPS AND REMINGTON

Less common are the American Sharps-Borchardt and Remington Rolling-Block single-shot military rifles in .45—70 and .50—70 caliber. These were in use in this country, particularly in State Militia, during the 1870's, '80's and '90's. The Sharps-Borchardt is a falling-block action, hammerless weapon with a safety behind the trigger. The action is opened by pulling down on the trigger guard, the cartridge is pushed straight into the chamber, and pulling up on the trigger guard closes and locks the action and also sets the safety. In order to fire the weapon it is necessary first to pull back on the safety and then pull the trigger. This rifle was made in caliber .45—70 and in rifle and carbine sizes.

The Remington Rolling-Block was an action that was very popular from the time of the Civil War for the next fifty-odd years in military and sporting rifles in various parts of the world. It was not used as a military rifle by the U. S. Government after the Civil War but several State Militia did use it. In this rifle the hammer is first brought to full-cock, then a tab on the right-hand side of the breech is pushed back and down which allows the rolling block to open and expose the breech. Then a cartridge is pushed in and the rolling block closed. The hammer can be lowered to half-cock or all the way down on the block. With the hammer down, the block cannot be opened. The action is safe for cartridges of the old type for which it was made, although it is not a very strong action as military weapons go.

THE MARTINI-HENRY

Less common in this country are the English Martini-Henry .577—.450, the standard English single-shot weapon of this early period, and the German single-shot, bolt-action, 11 mm. Mauser, Model 1871. Both of these rifles take a cartridge, in general, similar in ballistic characteristics to our .45—70 and are strong and serviceable weapons if they can be obtained with any ammunition to go with them.

These are the military type rifles which will most likely be encountered. They are all effective weapons and vary in range from the old black powder guns, whose trajectory at longer ranges is so high as to limit them for practical purposes to some 300 or 400 yards, to the more modern types of military arms, which are capable of giving serviceable fire up to and over 1000 yards. Any one of them, if obtainable, will add to the range and fire-effectiveness of any guard organization.

Chapter 4

SPORTING RIFLES

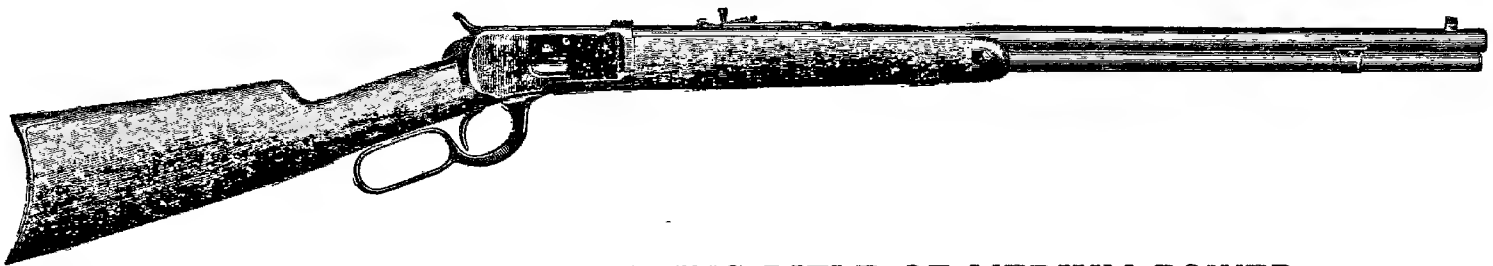
THE GROUP of available sporting rifles is far larger than that of military weapons and offers a much greater variety to State Guard units. Sporting rifles are, and have been for many years, used in this country for everything from long-range, big-game hunting to woodchuck and squirrel shooting.

HEAVY BOLT-ACTION TYPES

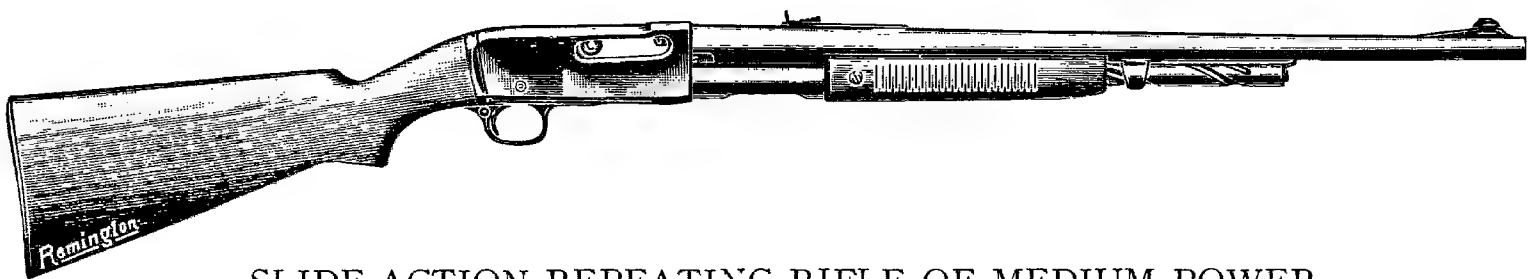
The nearest approach in this category to the military type rifles are the bolt-action sporting rifles made for military ammunition or ammunition of power comparable to it. Many of these weapons are actual conversions from military arms to sporting-type rifles or weapons made by various manufacturers on military-type actions. The heaviest of them are the target-type rifles for long-range target shooting. These can be very well adapted for sniping use as they are finely accurate up to ranges exceeding 1000 yards.

The Winchester Models 70 and 54 and the Remington Models of the 30 series are the best-known weapons of the type in this country. There are also many similar custom-built and foreign rifles of equal quality and desirability. As far as action, safeties and barrels, they do not differ appreciably from corresponding military weapons. Their main difference is in the fineness of finish, the type of stock,

BOLT-ACTION REPEATING SPORTING RIFLE OF HIGH POWER



LEVER-ACTION REPEATING RIFLE OF MEDIUM POWER



SLIDE-ACTION REPEATING RIFLE OF MEDIUM POWER

weight and length of barrel, and the sights which are applied to them.

The Lyman sights are the commonest and these are adjustable in peep-sight types to a very fine degree of adjustment for accurate long-range shooting. Weapons fitted with them are even more adaptable to sniping-type work than the standard military rifles, as their sights are better and in all other features they are equally good.

Occasionally a rifle with a telescopic sight will be found, and this, of course, is the acme of the sniper's equipment. Telescopes vary in power and type from 3- or 4-power hunting scopes to high-powered, finely-adjustable target scopes. When such a rifle is obtained, it is best to write to the maker or consult a large sporting goods store for accurate information as to just how to use the form of sighting equipment with which it is fitted, unless the owner is thoroughly familiar with it and can use it himself or transmit the information.

Many custom-built rifles on Mauser, Mannlicher, and Springfield actions also partake of the same general characteristics as the Winchesters and the Remingtons. When any of these rifles is encountered in any of the more powerful calibers, from .30—06 down to .257 Roberts or .250—3000 Savage caliber, it is reasonable to consider them at the least equal to a good modern military rifle as far as range, accuracy, and dangerous area are concerned. The sights should be set between 400 and 500 yards for "battle" purposes, and hits may be expected between 500 and 600 yards as in the case of the standard modern military rifle.

However, if possible, these rifles should be placed in the hands of specially trained riflemen who know how to use

the sights, allow for different ranges, estimate distance, windage, and so forth, and can get hits at nearly twice that distance. Effective sniping is a very discouraging type of attack for the enemy, as it is exceptionally hard to meet.

MEDIUM BOLT-ACTION RIFLES

Bolt-action rifles are also made by Winchester, Remington, Savage, and other concerns in the "medium-power" cartridges, many of which were developed for earlier type rifles. For the most part these rifles have less accurately adjustable sights than the heavier and more expensive weapons, but cartridges such as the .30—30, .32 special, and the various medium-range deer cartridges are very effective at ranges between 250 and 400 yards. A battle-sight setting for this type of rifle of about 300 yards will give a dangerous area inside the 300-yard mark and for another hundred yards or so beyond it, as most of these cartridges have a trajectory of not more than 20 inches above the line of sight up to that distance.

LEVER AND SLIDE ACTIONS

Rifles of an older type but which are still made in considerable quantities by most of the arms companies are the lever- and slide-action repeating rifles. Lever- and slide-action repeating rifles have never been accepted as military weapons since the time of our Civil War for a number of reasons. These reasons are adequate from a military point of view, but they do not militate against such weapons for general use. In most weapons of this type the cartridges are fed into a magazine below the barrel through a loading gate on the right side of the frame, one at a time. Most

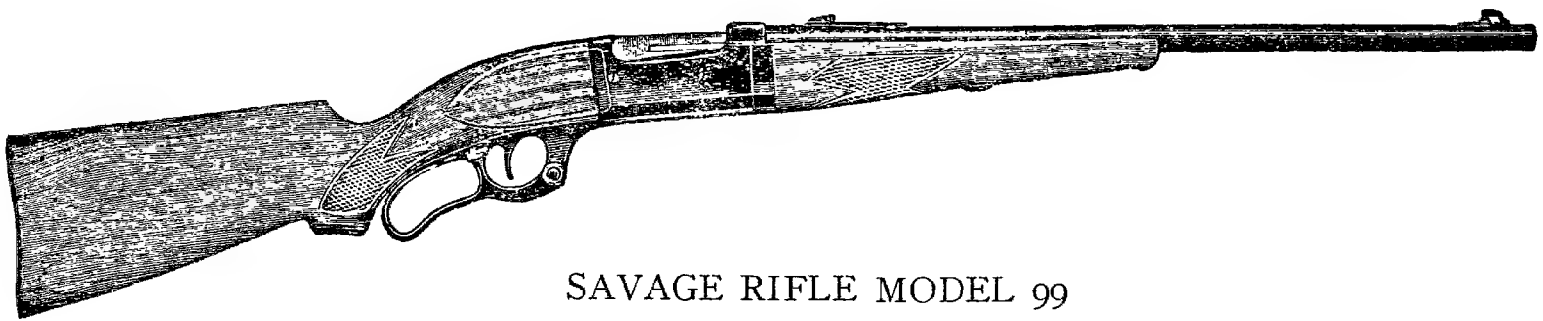
magazines in this type of rifle hold from five to twelve cartridges. These rifles are operated by throwing down and forward a lever which includes the trigger guard and accepts the last three fingers of the shooting hand. This brings the cartridge into the chamber and cocks the hammer. After the rifle is fired, another motion of the lever throws out the fired cartridge, replaces it with a loaded one, and again cocks the hammer.

THE WINCHESTER '95 AND SAVAGE '99

Two exceptions to the general run of lever-action rifles may be noted. The first is the Winchester model 1895 which is a very heavy and powerful lever-action rifle and is chambered for some of the most powerful cartridges used in this type of arm. In this rifle the cartridges are loaded down through the action with the lever thrown back and five cartridges may be put in a vertical box magazine, like those on the bolt-action rifles, being inserted one at a time and not from a clip.

The Savage model '99 lever-action rifles use the rotary-type magazine similar to some of the sporting Mannlichers and the action is a hammerless one. The cartridges are inserted through the action with the lever thrown open and are carried around the rotary magazine against spring pressure. The bolt can be closed with five cartridges in the magazine and the chamber emptied by holding down the last cartridge as the bolt is started home. There is a safety on this rifle at the rear of the trigger guard and also an indicator in the form of a pin protruding at the rear of the top of the receiver, which shows whether or not the rifle is cocked.

WINCHESTER MODEL 95



SAVAGE RIFLE MODEL 99

The Savage rifle is chambered for the cartridges usual to a lever-action rifle of high and medium power.

Care must be taken with hammer rifles of the lever type to lower the hammer when it is not necessary to fire immediately after placing a cartridge in the chamber. On Savage rifles the safety should be set. The hammer is then re-cocked by hand for a shot when it is needed, or the safety thrown off. On most occasions it is advisable to carry any of these rifles with cartridges in the magazine but none in the chamber. When it is necessary to fire, a quick movement of the lever loads and cocks the weapon for immediate use.

If a cartridge has been levered into the chamber and it is desired to remove it without firing the gun and without replacing another shell in the chamber from the magazine, this can be accomplished by moving the lever only part way forward and picking the cartridge out of the open breech action before the carrier has been lowered to pick up a second one from the magazine. The removed cartridge can then be placed in the magazine through the loading gate after the action has been closed on an empty chamber.

The cartridges used in lever-action hunting rifles range in power from cartridges of the type of the .348 Winchester, .30 Army or Krag cartridge, the .303 British, and the other cartridges of just under high military power down to very light loads. Rifles in this category using cartridges of the medium- to high-power type should have an approximately 300-yard battle-sight setting with an expected dangerous range of something over 400 yards, as many of these cartridges are the same as those found in the medium-power bolt-action rifles.

Lever-action rifles are also still found in many of the

old calibers of fifty or sixty years ago. These are usually designated by two fairly low numbers in sequence such as .38—40, .44—40, .40—60 or some similar designation. Cartridges in this group for the most part use a fairly heavy, large-diameter bullet of the short stubby type. They are low-velocity loads, ranging in muzzle velocity from 1300 to 1700 feet per second. This group of cartridges gives fairly high trajectories and the battle-sight setting for them should be approximately 200 yards with an expected dangerous range of 250 to 275 yards, although they will actually carry considerably over 1000 yards, as will most rifle cartridges regardless of their power.

REMINGTON SLIDE ACTIONS

A small group of rifles in this general category are the slide-action rifles put out by the Remington Arms Company in "medium deer" calibers. These partake of the general characteristics of the medium-power rifles except that they operate similarly to a slide-action shotgun. Instead of working with a lever, the forestock is attached to a movable rod, and pressure on this throws the action open, ejects the cartridge, and replaces it with a fresh one from the tubular magazine underneath the barrel. These rifles are all hammerless and have some form of safety either on the receiver forward of the small of the stock or below and in front of or behind the trigger guard. They should be examined very carefully, and it should be made clear to whoever uses them just what the safety features are, as all hammerless weapons are more dangerous for the beginner than weapons with hammers which immediately show whether or not they are cocked.

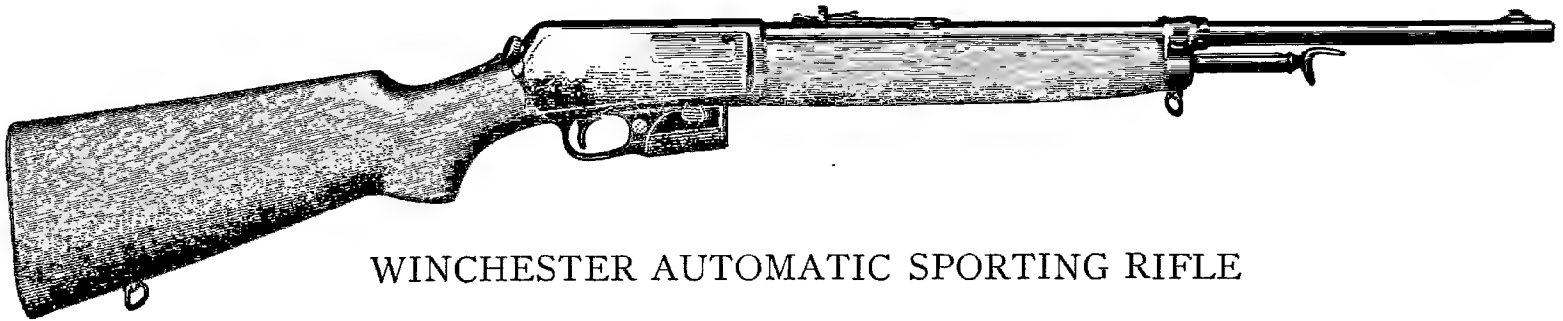
As in the lever-action repeating rifle, these rifles should be carried with cartridges in the magazine but preferably none in the chamber. The type of cartridges which they use is on the low side of the medium-power range. Average battle-sight settings at around 275 yards will give dangerous areas of 75 to 100 yards over that figure.

SEMI-AUTOMATIC RIFLES

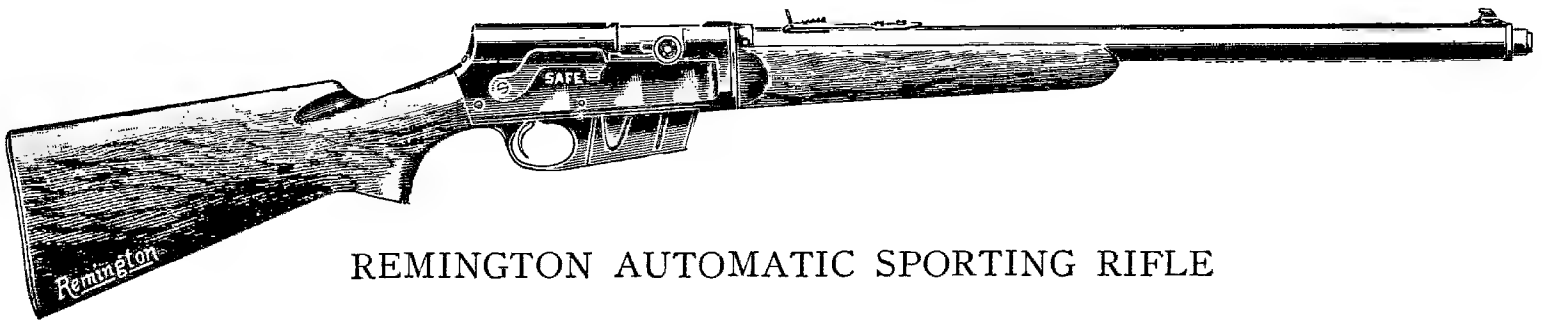
Another group of rifles which may be available are the Remington and Winchester semi-automatic hunting rifles. Both are made for several medium-power cartridges of the approximately 250- to 300-yard battle-sight range. They load with detachable box magazines and may be carried with loaded magazines but with no shell in the chamber as in the case of the lever- and slide-action rifles. The Winchester is operated by pushing down on the operating rod at the front end of the forestock, while the Remington is loaded by pulling back on the bolt handle which is on the side of the receiver.

These rifles are well-made, medium-power weapons and most of their cartridges are very similar in general characteristics to the newly adopted army carbine cartridge designated as the .30 S.R.M.1, giving effective accuracy and hitting power up to 300 yards or slightly more.

Both of these rifles are equipped with safety bolts; the Remington on the right side of the receiver behind the operating handle, and the Winchester on the upper part of the trigger guard. Automatic rifles, like all automatic weapons, are, for persons unfamiliar with firearms, the most dangerous type to handle. Particular caution should always be taken in impressing anyone who uses them with the fact



WINCHESTER AUTOMATIC SPORTING RIFLE



REMINGTON AUTOMATIC SPORTING RIFLE

SINGLE-SHOT SPORTING RIFLE

that each time they are fired they are automatically reloaded and ready to fire again on the first pull of the trigger. The magazine must be withdrawn before the action is operated to throw out the cartridge in the chamber or another one will be replaced as the first one is thrown out.

As with any automatic weapon, it is advisable to have as fresh ammunition as possible for actual service, although old ammunition will do for practice use. The older the ammunition the more variable its quality and the more likely that an automatic action will jam. This applies to any automatic.

SINGLE-SHOT RIFLES

In addition to the repeating rifles, there are in existence in this country many single-shot rifles made for target and hunting use over the period of the past seventy-five years. They include weapons chambered for some of the relatively modern target cartridges. The best of them were made by Remington, Winchester, Sharps, Ballard and Stevens. For the most part these weapons are relatively heavy. They have strong breech actions of one of several popular types. The falling block, operated by a trigger-guard lever, is the commonest, but several others will be encountered. It is relatively simple to discover how they operate, but caution should be taken, particularly with the Winchester single-shot rifle, as some of these actions leave the hammer cocked when they are closed. Of course, in these rifles it is only in the chamber that the cartridge can be retained, so when it is there, it is ready to fire. If an arm of this type must be used, it is perhaps best to carry it unloaded, particularly in populous areas. It can be loaded very quickly with a car-

tridge from the belt or pocket when it is necessary to do so.

An accident with this rifle, as with all other rifles, is far less likely to happen when no cartridge is in the chamber. The dangerous areas and battle-ranges correspond to repeating rifles using similar ammunition and vary all the way from cartridges that are just under modern military classifications with dangerous ranges of 400 or 500 yards down to the lowest power weapons which it is feasible to use, whose sights should be set at 200 yards with an expectation of less than 300 for reasonably certain hits.

For the most part these weapons have no safety features, with the exception of the Sharps-Borchardt, which has an action similar to the Sharps-Borchardt military rifle previously described. Users should understand them and note whether or not the hammer is cocked by the closing of the action, learning how to bring the hammer safely to half-cock when the gun must be carried loaded.

Some of these rifles with finely adjustable sights or telescopes will also qualify as sniping equipment. A rifle chambered for a fairly high-powered cartridge, such as the Krag, and fitted with a good telescope sight should be a very deadly weapon at up to 500 or 600 yards.

These various non-military repeating and single-shot rifles of high, medium, and low power are the largest group which the State Guard, when looking for equipment, will have to select from. In general, any of them that is well made and in good condition will be far superior, both in accuracy and range, to a shotgun, no matter what type of ammunition is used with it. Care should be taken that, if rifles which are known to be over 25 or 30 years old are used, ammunition of the low-pressure, smokeless type is used with them.

Particularly in the earlier type, such as the .38—40, .32—20, and so forth, there are modernized loadings available. These use a lighter bullet than standard and drive it at a comparatively high velocity in an attempt to bring up to date the old-type cartridges.

While the chances are that any rifle in good condition has a sufficient margin of safety to handle this ammunition, when there is any doubt, or if the rifle is obviously old enough to have been built for black powder in the first place, it would be wise to turn it down if no low-pressure or old-type black powder ammunition is available and if anything else can be obtained to take its place. The science of metallurgy has forged ahead tremendously in the last few years, and modern ammunition has built its pressures up to take advantage of the superior strength that is available to firearms today. The early arms are doubtful possibilities under the highest pressure modern loads. It is wiser to avoid the combination when possible.

Chapter 5

SHOTGUNS

ISSUE TYPES—SINGLE BARREL

AT THE present time the majority of weapons issued by the Ordnance Department to State Guard units are 12-gage shotguns, single- or double-barrel, and of medium grade.

These are new weapons purchased by the Service of Supply for issue to State Guard units in place of the rifles that are more urgently required elsewhere. They are modern weapons of simple action and adequate design. The single-barreled models are, for the most part, hammer guns opened by throwing the locking bolt lever on the small of the stock below the hammer to one side, and pressing the barrel down on its hinge in the frame. Some have what is called an automatic ejector and some do not. In the automatic-ejector models, when the gun has been fired, the shell is thrown clear as the breech is opened by an ejector which has a spring-driven piston, somewhat similar to a gun-lock in itself, that is tripped by a sear as the breech is opened. Thus, in opening such a gun, it is advisable not to have the breech pointed exactly at the face of the user.

These guns are the rebounding-hammer type. That is, when the gun is fired, the hammer, having struck the firing-pin, rebounds to a position similar to the old half-cock and

is held there by the trigger when it is released. It also, of course, maintains this position when the gun is reloaded.

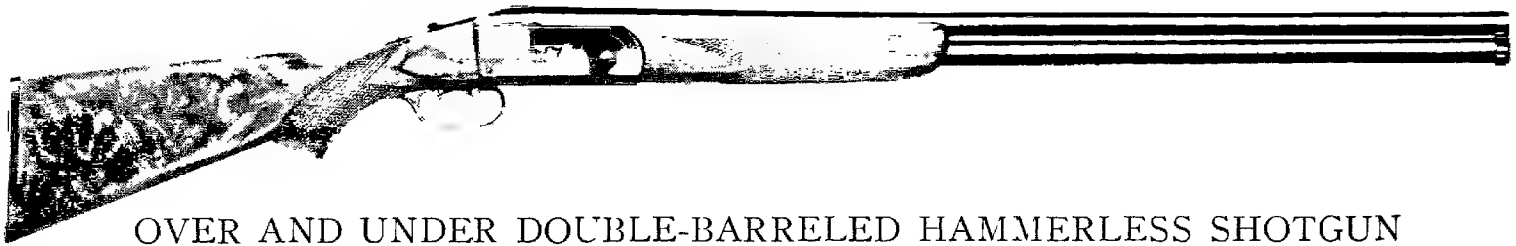
Thus a gun dropped is not so likely to be accidentally fired by the hammer being driven against the firing-pin and consequently exploding the primer.

Opening the breech does not cock this type of gun. So a gun may be opened, a shell inserted, and the breech closed without making the gun ready to fire. When it is necessary to fire the gun, the hammer is pulled back by the thumb of the shooting hand and the trigger pulled in the usual way.

There is no safety on this gun except that of the hammer being locked in the rebounded, or half-cocked, position. Preferably, such guns should be carried empty when possible, as a shell in the chamber is, of course, a shell under the hammer, and accidents can happen.

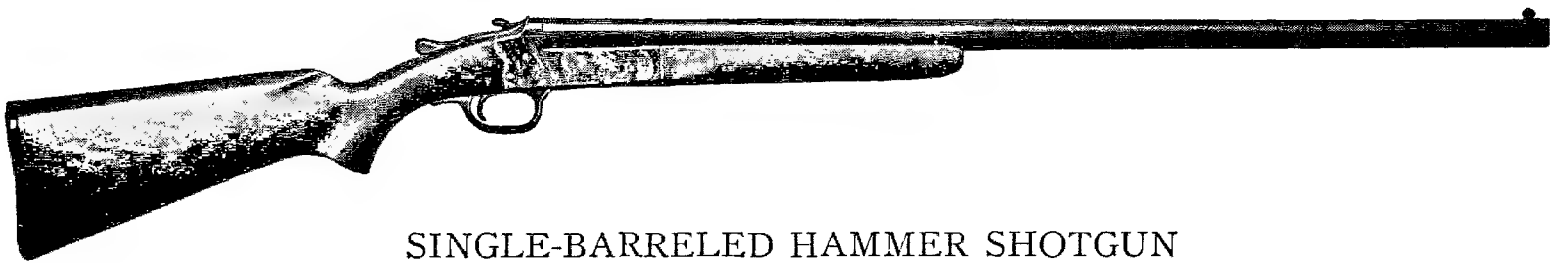
ISSUE TYPES—DOUBLE BARREL

Some double-barreled, hammerless guns are being issued as well as the single-barreled models. These guns differ from the single-barreled weapons in that the hammers are inside and consequently concealed. Throwing open the locking-bolt lever on these guns opens the breech in the same way that it does in the single-barreled guns. But opening them cocks the hammers at the same time and also throws the safety, which is on the tang of the action just forward of the small of the stock, to the safe, or lock, position. When the gun is closed the shells are in the chambers and the hammers are cocked, but the triggers cannot be pulled until the safety is pushed forward to the "off" or "fire" position. Usually in double-barreled shotguns the forward trigger controls the right barrel and the rear trigger the left barrel.



OVER AND UNDER DOUBLE-BARRELED HAMMERLESS SHOTGUN

DOUBLE-BARRELED HAMMERLESS SHOTGUN



SINGLE-BARRELED HAMMER SHOTGUN

The same precautions should be taken with these weapons as with the single-barreled gun. There is no way of carrying them with the shells in except ready to fire, and it is far safer to carry them empty whenever possible.

Double-barreled shotguns may be either side-by-side or over-and-under barrels. The general mechanism, safety features, and so forth are the same whatever the arrangement of the barrels.

Most shotguns of the double- or single-barreled type are taken apart by pulling off the wood forestock which is either held by a spring snap or attached by a catch let into the wood near the center of the forestock. After the forestock has been removed, breaking the gun in the usual way by throwing open the locking bolt and pushing down on the barrel will allow the barrels to be removed from the hinge.

The gun is then in three pieces ready for packing or cleaning. The forestock should be replaced on the barrels before the gun is put away so that it will not be lost.

Some shotguns are coming through at the present time with plastic or tenite stocks. These stocks are in some respects inferior to wood but they are not as fragile as some of the reports make them out to be. They can be handled pretty much as wood stocks are handled, but all gun stocks should be treated as well as possible under the circumstances.

The sights on these guns, as on all shotguns, are relatively simple and sketchy. They consist of some sort of bead at the muzzle and a groove at the breech of the barrels. Shotguns are, of course, primarily designed for wing shooting, where little sight is taken. However, it should be the practice of State Guardsmen, in the use of all military weapons, to aim a shotgun or any other weapon as nearly as possible at the center of the mark, regardless of what type of ammu-

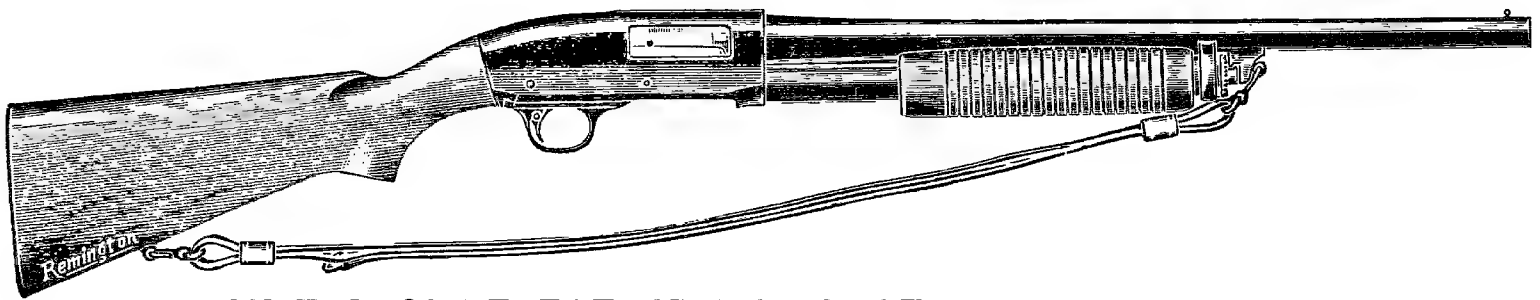
nition is being used in it. The military mark will rarely move with the speed of a flying bird, and the average State Guardsman is not as familiar with a shotgun as the skeet shooter or upland game hunter, therefore any aim which there is time to take is advisable.

RIOT GUNS

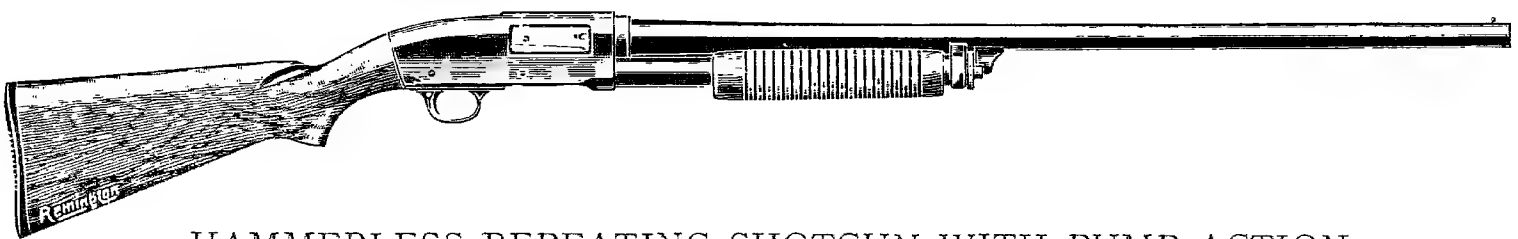
Numerous other shotguns of varying types and gages will probably be available. There has been some State and Military issue of repeating shotguns of several types. Perhaps the nearest approach to the actual military weapon is the riot gun, or trench gun, which was developed during World War I. These, in their most military form, carry a perforated guard over the barrel and also a place for locking on a standard model 1906 U. S. bayonet. The riot or trench shotgun is a 12-gage, repeating shotgun of the slide-action type with a cylinder-bored 20-inch barrel. It is designed to receive five loads in the magazine and put them into the chamber successively by sliding the trombone action backward and forward. This is a hammer gun. And like the lever- and slide-action rifles, the hammer is cocked at the same time that a shell is placed in the chamber by the operation of the action.

Thus, the hammer should immediately be let down very carefully to the half-cocked position if the gun is not to be fired, and like other repeating weapons of the tubular magazine type, it is possible to lift out the shell in the chamber and replace it in the magazine while the gun is still partially loaded. Police riot guns are similar in size, type and action to the trench shotguns, but they do not have the guard over the barrel or take a bayonet. These guns are made by both the Winchester and Remington Companies in "Police" or

HAMMER RIOT SHOTGUN WITH PUMP ACTION

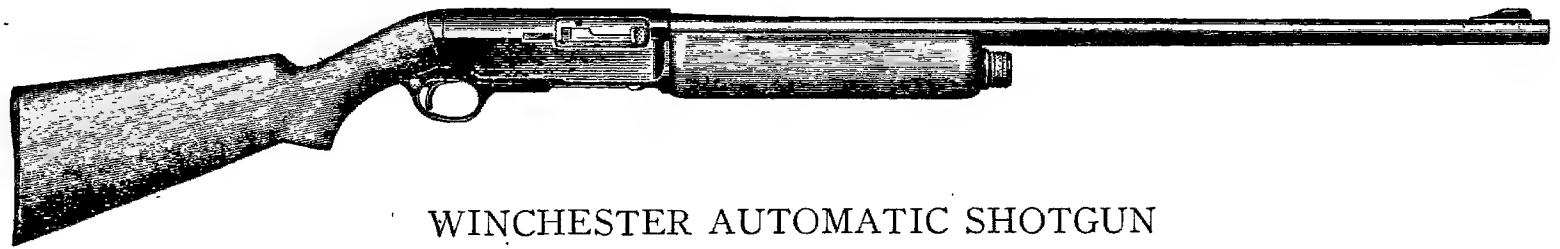


HAMMERLESS REPEATING RIOT SHOTGUN WITH PUMP ACTION

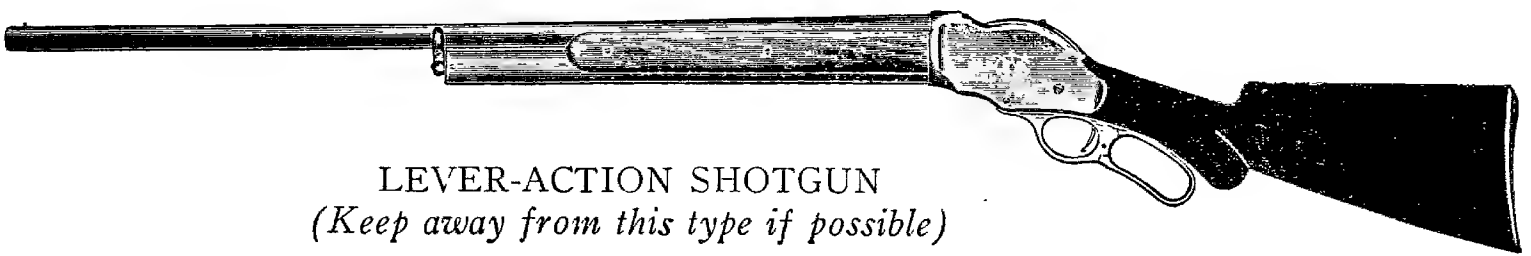


HAMMERLESS REPEATING SHOTGUN WITH PUMP ACTION

AUTOMATIC SHOTGUN, BROWNING TYPE



WINCHESTER AUTOMATIC SHOTGUN



LEVER-ACTION SHOTGUN
(Keep away from this type if possible)

"Riot" models, some of which are hammerless and should be treated with the precautions desirable for all hammerless arms.

Sporting shotguns in the same general type of slide action are made in all the popular gages by most of the companies manufacturing shotguns. They work similarly to the riot or trench gun, except that a number of them are of the hammerless type, and consequently are provided with safeties, either just forward of the small of the stock, on top of the receiver, or the top of the front or rear of the trigger guard.

AUTOMATICS

Another type of shotgun which may be readily available is the automatic shotgun. These weapons have been made in this country for some thirty years or so by Winchester, Remington, Savage, and other makers, and also imported in the original Browning manufacture from Belgium. In common with all automatic weapons, they fire successive shots simply by pulling the trigger. For the most part they are loaded through loading gates in the action into a tubular magazine, five-shot capacity, located under the barrel. They are made in both the long and short recoil types of action, and are hammerless, well-balanced weapons.

Safety devices for locking the action in the cocked position with the shell in the chamber are present on all of them, in most cases in the rear or forward parts of the top of the trigger guard, as in the slide-action models.

In common with the other repeating weapons, they should be carried with the chamber empty, and the action manipulated once to put a shell in the chamber when firing is expected. They should be issued to men who are thoroughly

familiar with their action and with their safety features, as they have the common danger of all automatic weapons of being always ready to fire with a pull on the trigger as long as any ammunition remains in them.

LEVER ACTIONS

There are in existence a few repeating shotguns of the lever-action type similar to the lever-action rifles. They usually have outside hammers. In one or two models, the hammers are very small and are hard to let down without having the thumb slip off and fire the cartridge. As these are, for the most part, relatively old guns, it is advisable to avoid them when possible, but if they must be used, they partake in general of the characteristics of the lever-action rifle and should be treated in much the same fashion. In these guns, particularly, it is advisable to leave shells out of the chamber until firing is imminent on account of the difficulty of letting down the hammer without firing the gun.

In general, any sporting shotgun of good quality is desirable for State Guard work. It is preferable to have a 12 gage because the 12-gage gun takes 00 buckshot which is the standard military load, with the best packing in its cartridge. But other gages, if ammunition is available and the need is present, should not be turned down. It is advisable to try to pick up repeating shotguns of the various types mentioned as improvements on the single- and double-barrel guns usually issued.

TRAP GUNS

There is, however, one type of shotgun that was made for some years and in very fine quality for the most part, which

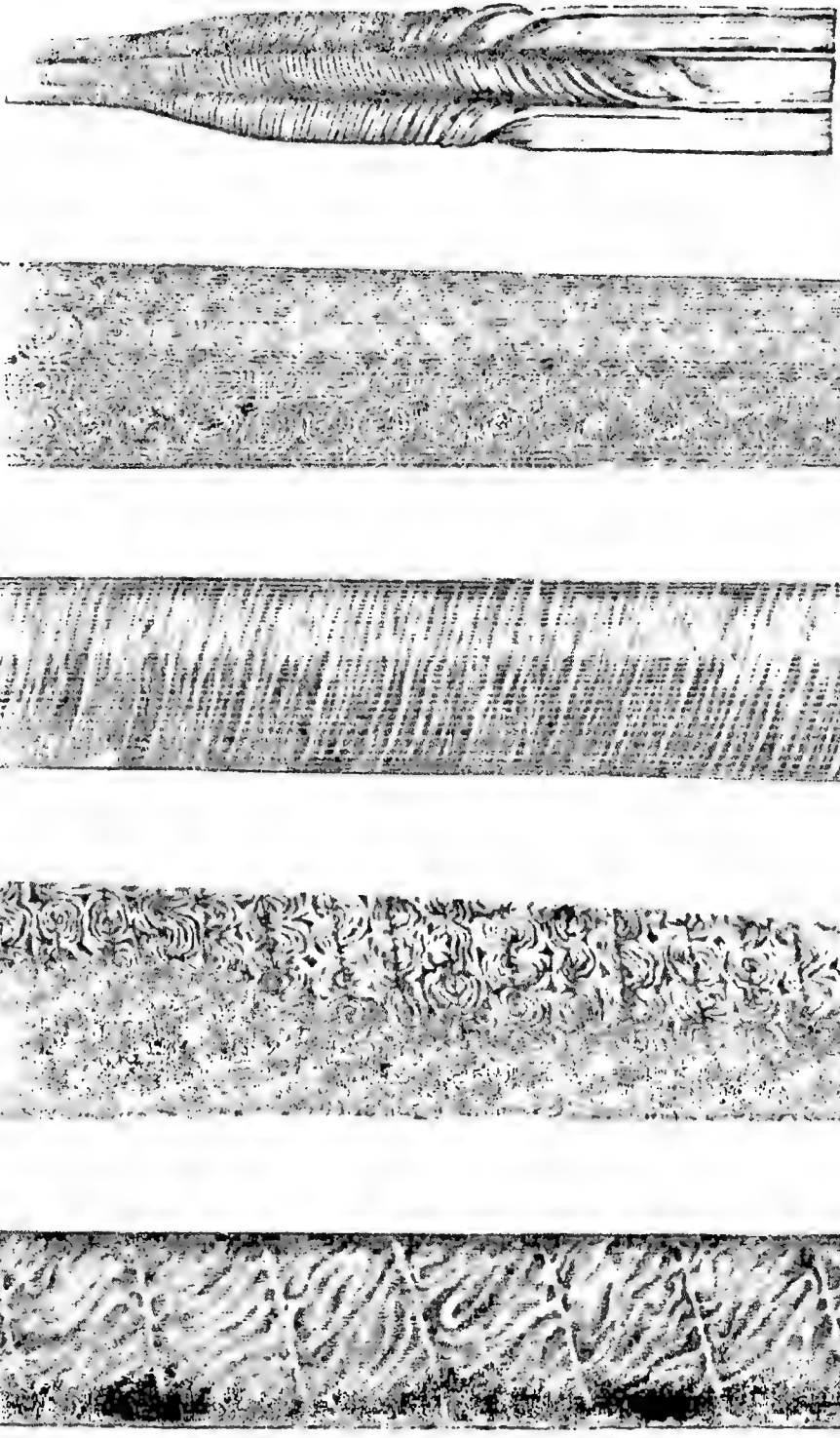
it is advisable to avoid. This is the hammerless, single-barreled trap gun of the trap-shooting days of some years ago. These guns were designed for trap shooting, and trap shooting only. Consequently they have no safety devices whatever. As soon as the gun is closed with a shell in the chamber, a touch on the trigger will fire it off. No way of preventing this is available. For State Guard purposes, such a gun is about the last gun that is desired and should be taken only as a last resort.

DAMASCUS BARRELS

Other shotguns that are advisable to avoid are any shotguns of the older types which have "twist" or "damascus" barrels. These barrels are made of a combination of iron and steel twisted together and etched with acid to bring out a very pretty pattern of different colors on the surface. While they look like watered silk, twisted rope, or some other ornamental design, they are extremely dangerous with modern ammunition.

The twist barrels were designed for black powder only, and they are too soft to stand up under modern loads, especially military-type buckshot, ball, and slug loads. Sporting magazines have been writing against the use of these guns for the last ten or twelve years, and it cannot be said too often or too strongly: keep away from them with any kind of modern load. If one is available with old-type ammunition, and it must be used, use it, but don't use it if it can be avoided. A gun of the twist-barrel type that cost $1000 forty-five years ago is more dangerous to shoot than a modern steel-barreled gun which cost $10 last week.

In using shotguns in any populous area, it is advisable to caution the men as to what can be expected from the various



DAMASCUS BARRELS
(Do not use these)

loads available. There are three standard loads of a military nature which are used in shotguns.

LOADS

The so-called "rifled slug" is a hollow-based slug with cylindrical sides cut in curved grooves on the outer surfaces to spin it against the barrel and the air for accuracy and stability. It weighs one ounce in 12-gage size. This is a very powerful missile and will penetrate the average frame house and go through an automobile to the extent of wrecking the motor or killing passengers after going through the body of the car. It will shoot into a ten-inch circle at 100 yards, and is reasonably accurate at 200 yards. Its extreme range is nearly a mile.

The old-fashioned round ball load for shotgun shells is nearly as deadly as the slug at close ranges, but it soon loses accuracy and velocity. It would be difficult to hit a man with it consistently at more than 50 or 60 yards, and it probably would not carry more than 500 or 600 yards.

Buckshot of the 00 size, which is the common load, is packed nine pellets to the cartridge, each pellet being .34 inch in diameter. It has a spread of about 1 inch to the yard and an extreme range of some 500 or 600 yards. It has a penetration of about 4 inches in pine, but not sufficient to go through the body of a car or through the walls of a well-built house at any distance. The spread of its nine pellets is relatively uneven, and this means that at over 10 or 12 yards some of the charge would miss a man-sized mark and at over 60 or 75 yards it would be very doubtful if any of the pellets would hit one individual, although they would undoubtedly land in a fair-sized group of people. If possible ammunition of at least two types should be provided: buck-

shot and rifled slugs or balls, preferably the rifled slugs.

One of the chief uses of the shotgun is for night guard duty, particularly in areas where firing a charge of buck will do no harm if it misses its mark. The spreading qualities of buck make shooting in the dark less of a gamble. Where aim was so poor that a rifle bullet would miss by 2 or 3 feet at 30 or 40 yards, one or more buckshot pellets would probably strike home.

For a great many of the duties which State Guard units will perform, the shotgun is an excellent and an adequate weapon. Its capabilities and its limitations, as well as the dangers of its use, should, however, be fully explained and understood by every man who carries one. Certainly in a riot or other civil disturbance the sight of the muzzles of fifty or sixty 12-gage shotguns in the hands of a determined company and the knowledge that those guns could spray some 5000 or 6000 pellets of buckshot a minute into the average crowd should be a potent factor in the restoration of law and order.

Shotgun barrels are smooth bored and in some cases "choked," or bored smaller for about two inches from the muzzle than the rest of the barrel. This is done in sporting arms to give a closer shot pattern for game shooting. Choke-bored shotguns are perfectly safe to use with small shot or buckshot and, usually, all right with round ball as round balls are apt to be loaded one size smaller than the bore of the gun for which the cartridge is intended as a safety precaution.

Rifled slugs, however, are sized to fit the bore closely and caution should be exercised in using them in inexpensive choke-bored guns. They will sometimes split a gun barrel at the muzzle.

Chapter 6

SUBMACHINE GUNS

ONE TYPE of weapon which the present war has brought into great prominence is the submachine gun. This is a weapon capable of either full or semi-automatic fire, of a weight convenient for carrying and operating by one man, and chambered to shoot pistol ammunition. There are probably a dozen different examples in use in the various foreign armies at the present time. Some of each of the two types most commonly manufactured in the United States, the Thompson submachine gun or "Tommy gun" and the Harrington-Richardson Reising submachine gun, have been issued to various State Guard units. Both use the standard .45 automatic pistol cartridge which is used in the .45 Colt automatic pistol, U. S. Government model 1911 and the U. S. revolver, caliber .45, model 1917. This cartridge in the submachine gun has a slightly higher velocity than in the pistol, running approximately 900 feet a second in the 11-inch barrels of the submachine guns. The bullet weighs about 235 grains and the striking force is between 300 and 400 foot pounds.

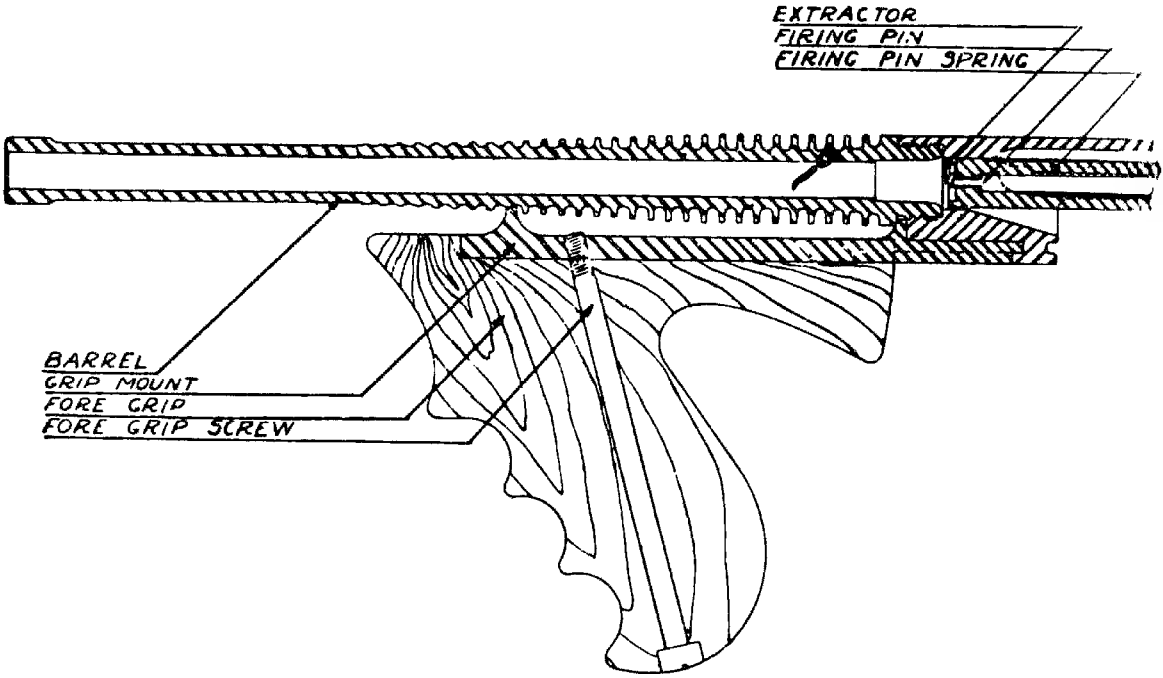
THE THOMPSON GUN

The Thompson submachine gun weighs approximately 11 pounds and is designed for either full or semi-automatic

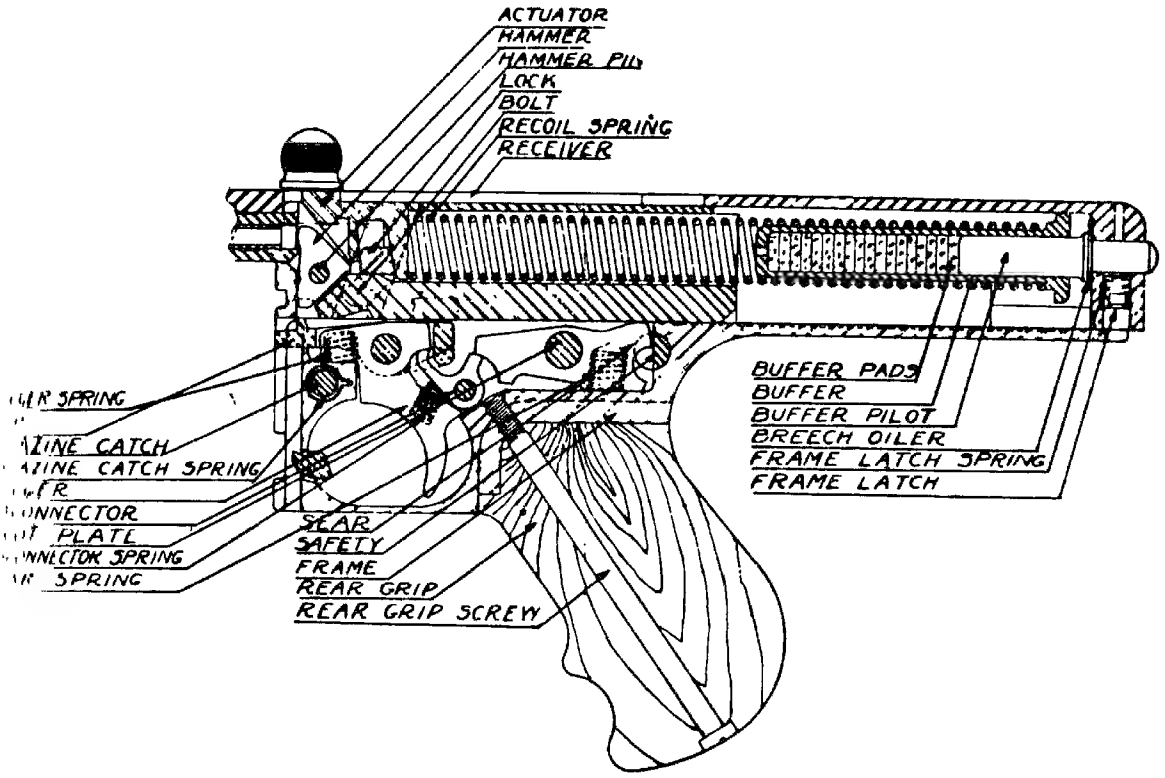
fire. The bolt is cocked open. When the trigger is pulled the bolt goes forward, picking up a cartridge from the magazine, chambering it, and firing it in one movement. The recoil from the discharge drives back the delayed-blowback action and re-cocks the bolt, if the weapon is being used for semi-automatic fire, or allows it to drive forward, repeating the fire cycle if the fire-control switch is set for full automatic. In either case the bolt stops back between shots, or bursts of shots, when the trigger is released. The weapon has a detachable butt stock. A 20-shot box magazine is commonly issued with it. Fifty- and 100-shot circular drum magazines which go into the same position below the action as the 20-shot magazine are also made for it. The commoner model being issued at the present time is the so-called Navy model with a forestock similar to a rifle.

An earlier type which may also be met with has a forestock which is another pistol-type grip situated roughly under the center of the barrel. This model weighs slightly over a pound less than the present one. The safety lever and fire-control switch are situated on the left-hand side of the receiver just above and behind the trigger and trigger guard. They are plainly marked with the "safe" and "fire" positions and the full and semi-automatic fire positions.

This weapon is thoroughly covered in the State Guard Manual and also in the regular army training manuals which are obtainable from the Superintendent of Documents at Washington, D. C. A few points may, however, be made concerning it. As the weapon fires from the cocked-bolt position, it is safest when the bolt is closed on an empty chamber. Therefore, to carry the gun loaded but safe, while it can be done by setting the safety lever on safe with the



THE THOMPSON SUB



MACHINE GUN MODEL 1921

bolt cocked, it is perhaps more advisable to lower the bolt to the forward position by pulling the trigger and releasing the actuator knob gently with the other hand, and then insert a loaded magazine, as a pull on the trigger has no effect whatever on the action when the bolt is down. No shot can be fired until the bolt has been deliberately pulled back to the cocked position, but the weapon is ready for immediate fire as soon as this is done.

Full directions for disassembling the gun are in the various training manuals on it, but two tricks that may make the operation easier for those unfamiliar with the gun may be mentioned. After the trigger and grip assembly has been removed it is necessary to take out the mainspring, mainspring guide, and so forth from the rear of the receiver. This can be done by reaching in with the thumb and pushing down on the guide until the rounded end of it clears the hole in the back of the receiver which keeps it in place. As this is somewhat hard on the thumb, an easier procedure is to reach in with the head of a standard .45 caliber cartridge, hook it over the mainspring guide and pull it down with the cartridge until the guide knob clears the hole in the receiver.

A great deal more pressure can be brought to bear this way than with the unaided thumb. It is also possible to push the small portion of the mainspring guide which comes out through the back of the receiver, through it with the point of a .30 caliber pointed-bullet cartridge, but this is less desirable as the bullet point may slip off the end of the guide and mar the back of the receiver.

The mainspring of the present model Thompson gun is a relatively long and powerful spring. When it is necessary

to replace it in the receiver it is advisable to compress the spring along its guide as far as possible by hand then put a paper clip or some similar small round wire into the hole in the guide provided for the purpose. This holds the spring compressed and with the guide it can be dropped into the section of the receiver intended to take it with relatively little further compression. In doing this, be careful to hold the flat section of the back end of the mainspring guide downward so that the paper clip or other nail or pin enters from a point opposite this flat section, otherwise it will be impossible to get the flat section in against the top of the receiver where it should go.

In use the Thompson gun should be treated as a weapon of medium range and power. Its .45 caliber, automatic pistol ammunition has an extreme range at maximum elevation of nearly a mile, but the general type of the weapon and the work that this cartridge is intended to do limits its accuracy in semi-automatic fire for individual targets to not much over 100 yards.

As there is and will be relatively little ammunition available for extensive practice, most State Guard units will be advised to use the submachine gun purely as a semi-automatic weapon. Used as a semi-automatic the gun can be fired very rapidly as it is only necessary to pull the trigger for each shot and a rate of one aimed shot a second is perfectly possible.

Accurate fire on personnel from 50 to 100 yards away may be expected from the gun with relatively little training as it is a two-hand weapon and easier to learn to shoot than a pistol or revolver. Barrage-type fire, even though fired semi-automatic, can be made effective on groups of per-

sonnel or on areas suspected to contain personnel up to ranges of 300 to 500 yards, far beyond any possibility of individual accuracy. For riot work and the controlling of crowds, one or more Thompson guns, in addition to massed shotguns, present a very substantial argument for peace and quiet. They look as deadly as they are at short range under crowded conditions and no average crowd would try to rush a group of them backed up by shotgun fire, at least not more than once.

THE H AND R REISING GUN

The Harrington-Richardson Reising submachine gun, as far as its ammunition and use go, partakes of the general characteristics of the Thompson gun. It is also made in two models: one with a shoulder-type stock and 11-inch barrel with an over-all length of 35¾ inches and a weight of 6½ pounds.

Another model is made with a pistol grip-shaped stock at the rear and a folding wire butt stock which lies along the left side of the wood below the receiver when it is folded. It folds out to make a butt stock of normal length. This type of gun is issued to some of the United States parachute troops.

Either model can be fired either full or semi-automatic as can the Thompson gun and they also feed from a detachable 20-shot box magazine. The regular Reising gun looks more like a miniature rifle than does the "Tommy gun" in that the stock is the conventional, one-piece rifle type stock which is common to many rifles.

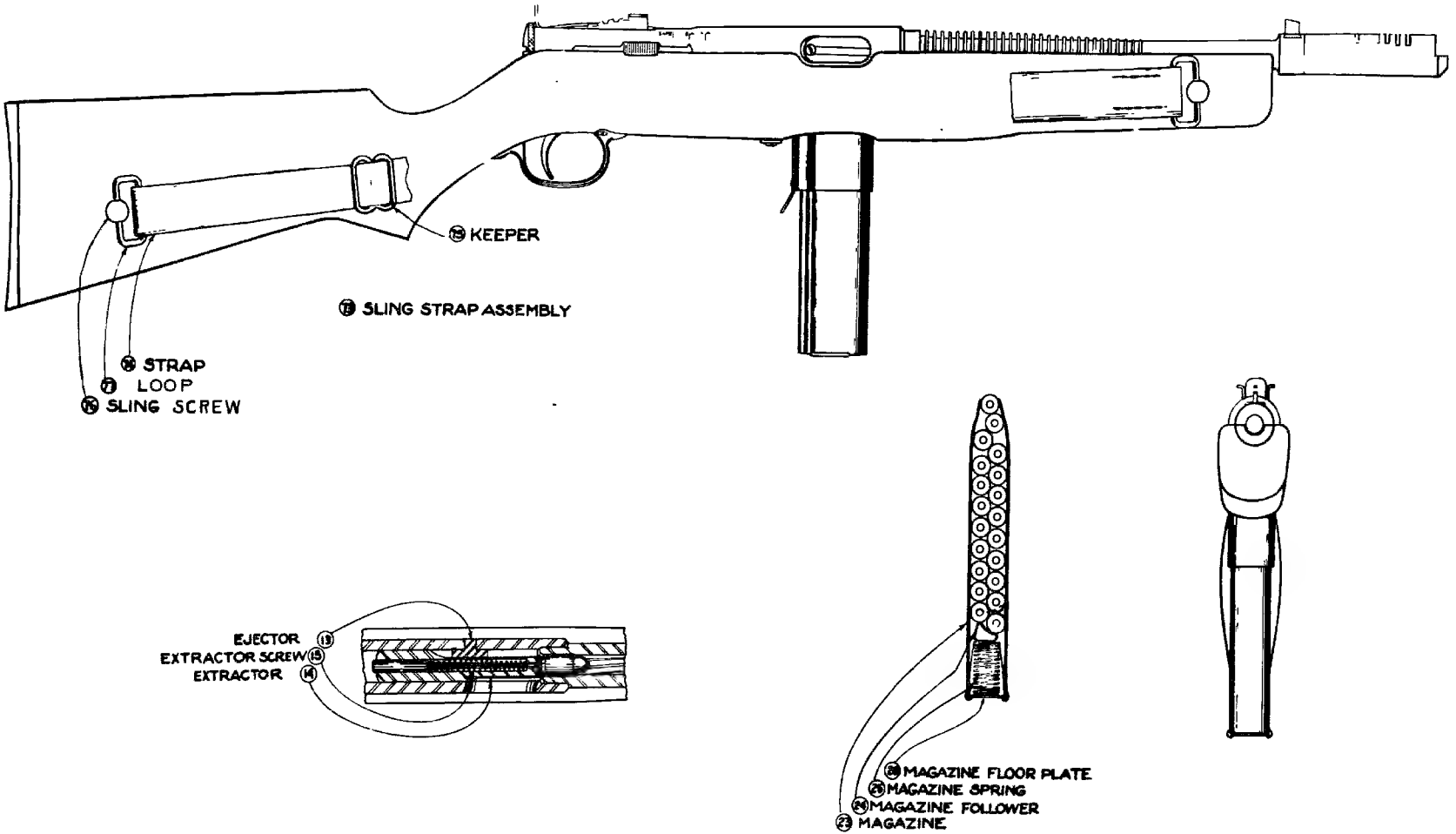
The Reising gun differs in action from the Thompson gun in a number of respects. Although it fires both full and

semi-automatic, both types of fire are executed with the bolt closed between shots or series of shots. The fire-control switch on the right-hand side of the receiver is safe or locked in its extreme rearmost position. Pushing it forward into the first notch gives semi-automatic fire and into the second notch gives full automatic fire both, as already mentioned, with the bolt closed between shots or series of shots.

The 20-shot box magazine is pushed up from below similar to that of the Thompson gun. In the Reising, if it is desired to carry the gun with a chamber empty but the magazine in place, it is only necessary to push a magazine into an empty gun as the bolt will be closed whether the trigger has been pulled and the hammer released or not. On the other hand, it is always necessary to examine and clear the chamber to make sure that the gun is empty because the bolt may be closed on a live round in semi-automatic fire ready to be discharged by a pull of the trigger. There is no way of locking the action with the bolt open.

This weapon has the same uses as the Thompson gun and should be handled in the same manner as far as safety precautions are concerned. Both weapons are usually fitted with a compensator at the muzzle which tends to hold the muzzle down in full automatic fire and prevent excessive kick or rising of the gun in the course of a burst of shots delivered full automatic. With the pistol-type ammunition both guns are heavy enough so that they can be controlled readily in full automatic fire without a great deal of practice. However, use of them by State Guard units should be at semi-automatic fire the large majority of the time except under extreme conditions.

A general booklet on the Reising gun, giving its char-


⑲ KEEPER
⑱ SLING STRAP ASSEMBLY
⑧ STRAP
⑦ LOOP
⑯ SLING SCREW
EJECTOR ⑬
EXTRACTOR SCREW ⑮
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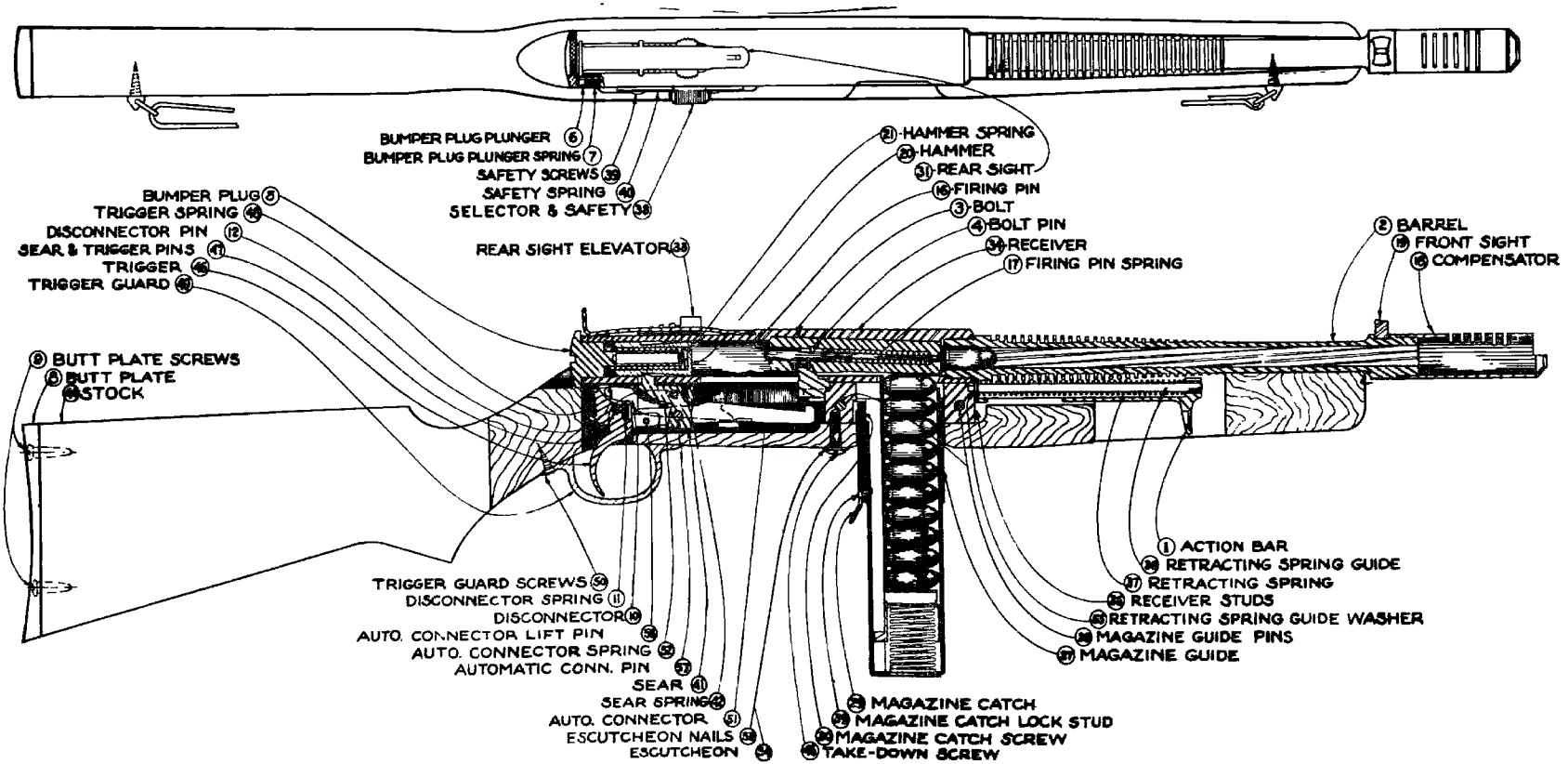


H AND R REISING GUN

acteristics, field stripping and so forth, is available from the Harrington-Richardson Arms Company as well as by Government issue. The gun is a simple one to take apart by following the directions, and there are no particular tricks in the handling of it that are not common to all weapons of this type.

Chapter 7

PISTOLS AND REVOLVERS

WHILE THE handgun or side arm has been looked on by military authorities for many years as a weapon primarily intended for guard duty or as a weapon of opportunity in battle which should be used only under special conditions at ranges of less than 20 yards, Americans as a whole, and especially in our western frontier areas during the last half of the 19th century, have probably been the largest owners and users in the world of handguns as offense, defense, and hunting weapons.

At the present time the sport of revolver and pistol shooting at targets is very popular and widespread all over the country. It is carried on by thousands of members of organized clubs as well as by individuals who merely shoot occasionally and for fun. The importance of proper revolver practice has been recognized by police departments for the past twenty years or more, and police revolver training has increased tremendously all over the country during that period.

A good pistol or a revolver is a weapon capable of being used accurately by an expert shot against man targets up to at least 100 yards. It is a powerful and readily portable weapon of defense and offense which can be carried either

concealed or on the belt on many occasions when it is impractical to carry anything as large as a rifle or shotgun.

THE .45 AUTOMATIC

The official military side arm of World War I, the .45 Colt automatic, United States Government model 1911, is fairly common as a civilian weapon, as many were brought back from the war or otherwise got into civilian circulation. Great quantities of them have been sold commercially by the Colt Company.

COLT AUTOMATIC GOVERNMENT, CALIBER .45, MODEL 1911

This is an 8-shot, short-recoil action, locked-breech automatic pistol with its hammer on the outside. Its 235-grain bullet, traveling in a pistol length barrel at about 800 feet a second, is a very thorough man-stopper, and at ranges up to 50 yards no allowance for drop need be taken on a man-sized mark. At 100 yards it is advisable to aim at about the level of the head of a man rather than the belt buckle as some drop is apparent at this distance. This pistol is thoroughly covered as to functioning, disassembling, etc., in the standard United States Government publications on it. Publication Number FM 23-35 is the basic Field Manual, obtainable

from the Government Printing Office in Washington.

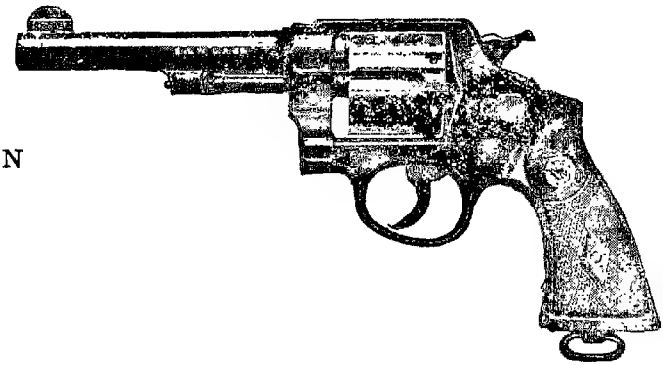
The .45 Colt automatic has a grip safety similar to most automatics plus a thumb safety on the left side which locks the hammer cocked so that it can be carried cocked with a cartridge in the chamber and the safety on. This practice is, however, inadvisable, as the gun should be carried with the chamber empty and the hammer down with the safety off. A slide lock on the left side of the frame locks the slide back when the magazine is empty and the gun should be left this way, with the magazine also removed, when it is being handled on the range or for training purposes.

One trick in disassembling that does not appear in the manual is, however, a great saving on the thumb. One of the first operations to disassemble the pistol is to press in on the recoil spring plug just under the muzzle of the barrel and turn the barrel bushing to one side. This can be done with the thumb, but the recoil spring is strong and the plug will sometimes slip from under the thumb and jump a considerable distance.

However, the magazine floor plate has a projection at its forward end which can be used to press down the mainspring plug very easily and securely. Hold the magazine in the hand, bottom uppermost, with the tip of the floor plate forward and away from the body. Place the pistol, muzzle up, with the back of the butt resting on any convenient solid surface and press down the plug with the forward end of the magazine floor plate, hooking it over the plug at an angle to hold it there securely. Then turn the barrel bushing to one side and release the plug slowly and carefully. All other features of the .45 are thoroughly covered in the Army Manual.

THE MODEL 1917 REVOLVER

Another United States handgun of World War I, which is obtainable occasionally and very desirable, is the United States Revolver, caliber .45, model 1917. These revolvers are the result of a compromise somewhat similar to that of the model 1917 rifle. At the time the facilities of the arms makers were overtaxed, as they are today, and all possible weapons were required. The Colt Company facilities for making automatic pistols were pushed to their limit, but there were also machines adapted to making revolvers which could not readily be converted to automatic pistol use. The Smith and Wesson Revolver Company had never made military automatic pistols and all its machinery for heavy



SMITH AND WESSON
ARMY REVOLVER
CALIBER .45,
MODEL 1917

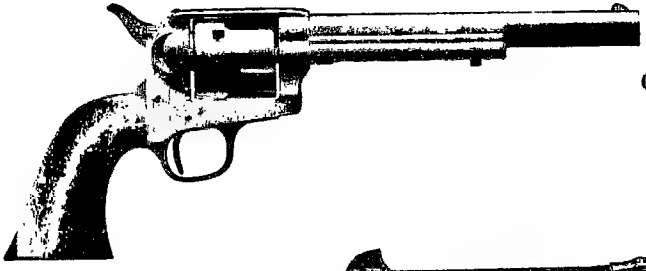
military model revolvers was available. So a revolver was developed from the standard heavy-frame military revolver put out by these two companies but differing from them in that it was chambered for the .45 Colt automatic pistol cartridge of the rimless type. The clearance of the rear end of the cylinders of these revolvers from the frame was made sufficient so that two semi-circular metal clips holding three rimless cartridges each could be inserted in the chambers. Two of these clips made a full load for the six chambers of

the revolver and the cartridges in them could be thrown out by operating the hand ejector which was designed for a rimmed revolver cartridge and would not eject the rimless cartridges if they were inserted singly, although they could be so inserted and fired if clips were lacking.

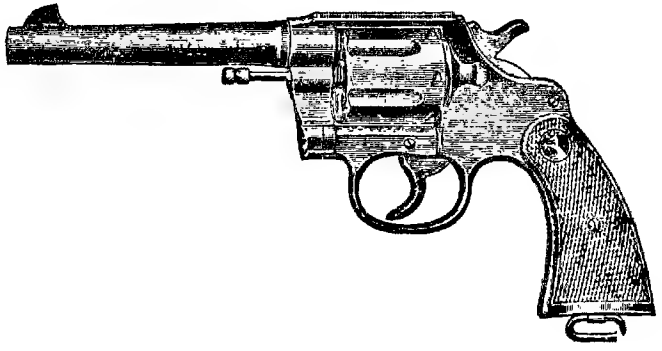
The model 1917 revolvers are perhaps easier and more comfortable to shoot than the .45 automatic pistol using the same cartridge. For military purposes, they are not considered as good, as it takes longer to load the cylinders than it does to change magazines in an automatic pistol, assuming there are extra magazines. But for the individual who is not very familiar with hand firearms the revolver is easier and safer to operate than an automatic pistol.

.44's AND .45's

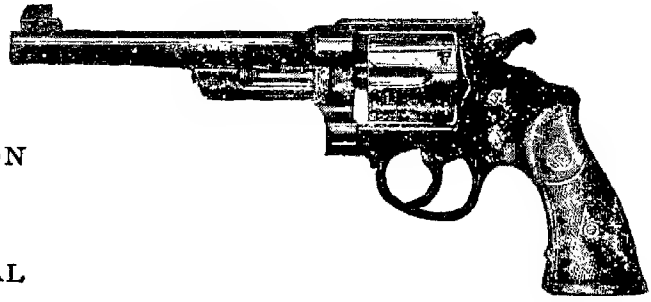
The next class of handguns below the 1917 revolvers comprises the other heavy-framed revolvers shooting car-



COLT SINGLE-ACTION
ARMY REVOLVER
CALIBER .45



COLT NEW SERVICE
REVOLVER
CALIBER .45

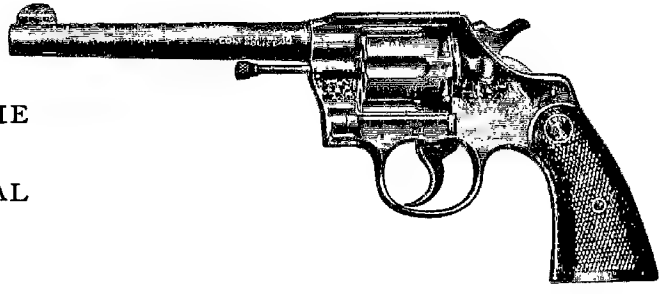


SMITH AND WESSON
HEAVY FRAME
TARGET REVOLVER
CALIBER .38 SPECIAL

tridges of .44 and .45 caliber. These include the Colt New Service and Single Action Army and Smith and Wesson military model .44 and .45 caliber revolvers and their target variations. Any of these arms and cartridges are accurate and have man-stopping power up to any reasonable revolver range.

THE HEAVY .38'S

Below these in desirability come the heavy-frame revolvers chambered for .38 special cartridges. Some of these revolvers are on frames peculiar to the .38 special and some are made on the heavy .44 frames. Either is of adequate weight and size for accuracy, and the .38 special cartridges are powerful and efficient loads. For man-stopping purposes the wad-cutter type bullets are desirable. These arms include the Colt Official Police, the old Colt new army, and the Smith and Wesson Military Police .38.



COLT HEAVY FRAME
REVOLVER
CALIBER .38 SPECIAL

The earlier models of these weapons, notably the Colt new army and new navy models as manufactured from 1889 to 1916 or 1917, and the early issue of the Smith and Wesson military and police models, should not be used with the high-speed .38 special loads, as they were designed for the .38 long Colt cartridges and the earlier version of the .38 special, and are not sufficiently strong to stand the present highest-speed loads. These are variously designated as .38 High Speed, .38—44, .38 Super X, etc., by different companies, and have muzzle velocities in the neighborhood of 1200 feet per second as against those of 800 to 900 feet per second in the standard .38 special loads.

THE .357 MAGNUM

In the .38 caliber class but transcending all revolvers in range and power are the Smith and Wesson Magnum, shooting the .357 magnum cartridge and the Colt New Service, or Shooting Master, chambered for the same cartridge.

This cartridge has a muzzle velocity of over 1500 feet a second with a striking force of better than 700 foot pounds. It has penetration beyond that of any other revolver cartridge and for long-range hunting and flat trajectory target work its power is almost unbelievable.

Either of these revolvers, although chambered for this cartridge, may also be used for any standard .38 cartridge and should be so used in thickly populated sections since the .357 magnum loads will penetrate wood almost like a rifle bullet and ricochet from hard surfaces for long distances.

THE .38 AUTOMATICS

In the heavy .38 caliber group may also be numbered the .38 Colt automatic pistols. There are four models of .38 Colt automatic pistols, three of them made between 1900 and 1928, and the fourth a .38 caliber version of the standard model 1911 automatic originally designed for the .45 caliber cartridge. The early .38's include a military model with a 6-inch barrel, 8-shot magazine and lanyard ring in the butt to attach to the belt, a sporting model of the same length barrel but with a 7-shot magazine and no lanyard ring, and a pocket model with a 7-shot capacity and a 4½-inch barrel.

The sporting model was made with a few minor differences from 1900 to 1902 as the Colt automatic pistol, caliber .38, with no other designation. It was the first automatic made in this country.

These three weapons as made from 1902 to 1928 have no safety features whatever except that the firing-pin is shorter than the distance from the hammer to the primer and consequently will not fire the cartridge if the pistol is dropped with the hammer down against the firing-pin. When the hammer falls from full-cock, it drives the pin forward with sufficient force so that the inertia carries it far enough to strike the primer and fire the cartridge. This is the same action as that of the present .45 Colt automatic pistol and makes all of these weapons perfectly safe to carry with a cartridge in the chamber and the hammer down as far as any possibility of their being discharged by falling is concerned.

All of these pistols have a typical automatic pistol action of moving slide with barrel locked to the slide. They are

equipped with a detachable butt magazine and in the case of the military model, a slide lock which locks the action open after the last shot has been fired. The .38 Colt automatic cartridge is a powerful pistol cartridge, having a muzzle velocity of about 1100 feet a second.

In 1928, at the time of the discontinuance of the three earlier models, the standard .45 model was chambered for the .38 caliber cartridge. Owing to the stronger and heavier action of the .45, the .38 caliber cartridge was increased in power to some extent, and called the "Super .38." It is inadvisable to use "Super .38" automatic cartridges in the early models of Colt .38 automatics as they were not designed to stand the breech pressure which this cartridge develops. The proper cartridges for them are marked Colt .38 Automatic Pistol cartridges on the box.

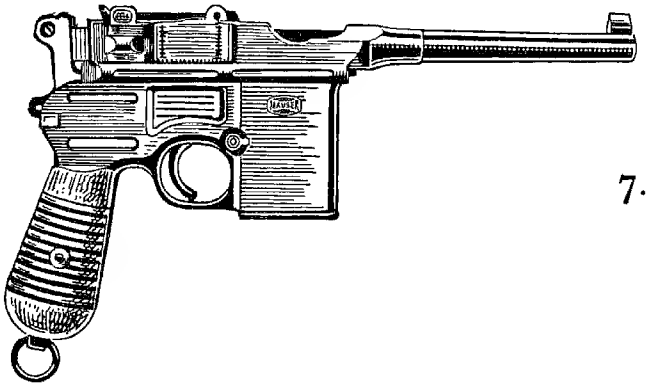
All of these models are powerful and accurate weapons and with the proper ammunition are efficient military side arms. The cartridge compares very favorably with that of the common European automatic pistol cartridges such as the 9 mm. Luger, Mauser, Steyr-Mannlicher, etc.

FOREIGN AUTOMATICS

The foreign military automatics met with in this country are also in the same general group of medium- to high-power handguns. In their knock-down effect they are limited more by their small-diameter bullets than by their power.

THE MAUSER

The earliest of the European automatic pistols in modern use is the Mauser holster automatic. This pistol is a rather clumsy-appearing weapon contained in a wooden holster



GERMAN MAUSER
7.63 MM. AUTOMATIC

which attaches to the butt to form a shoulder stock. The cartridge is a very powerful bottle-necked case with a .30 caliber bullet having a muzzle velocity of about 1400 feet per second. The Mauser pistol in several models has been made without major change since 1898 and is still one of the official side arms of several European armies, including the German. A great many of these guns were brought back to this country during and after World War I.

The earlier models have a box magazine taking ten cartridges in a staggered column, loaded through the action with the bolt open, either from a 10-cartridge clip or by inserting the cartridges singly. The later models can be loaded the same way, but the box magazine is detachable and can be loaded and carried loaded separate from the pistol. A model made in Germany since 1932, but rarely imported into this country, uses a 20-shot detachable magazine and can be set to fire full automatic as well as semi-automatic for use as a light submachine gun. It was with two of these that King Alexander of Jugoslavia was killed in Marseilles during the middle 1930's.

The Mauser pistol has an outside hammer and a positive

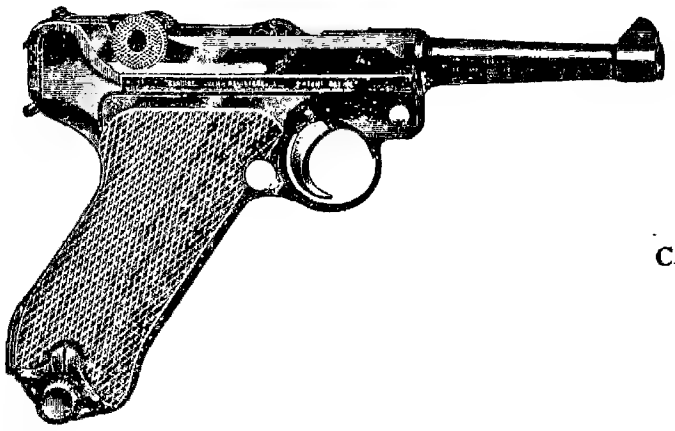
thumb safety on the left side of the frame. It is cocked and the cartridge fed to the chamber by retracting the bolt, by pulling backward on the knurled thumb pieces at the top rear of the frame. It can be carried loaded with the chamber empty and made ready to fire by retracting the bolt or carried loaded and cocked with the safety on, or loaded with the hammer down, although the first method is the safest. Accurate shooting at considerable distances can be done with a shoulder stock attachment, but as this attachment is outlawed for civilian use by Federal Government regulations at the present time, it is not commonly found in pistols in the possession of civilians.

Without the shoulder stock the weapon is an awkward and badly balanced pistol with a small bullet which is not particularly efficient at short ranges as a man-stopping missile. Other handguns should be given preference over it when possible.

THE LUGER

The other popular European military-type handgun is the Luger pistol, originally invented by a Connecticut man by the name of Borchardt and manufactured by the Loewe Weapon-Making Company of Berlin. This was the first automatic pistol that was ever made. It was manufactured from 1893 to 1900. Then it was improved by George Luger, an engineer of the firm, and appeared as the Luger or Parabellum pistol about 1900.

It has the usual detachable butt magazine and a toggle-joint action with locked breech so that the barrel and receiver move back locked together for a short distance, then the toggle takes effect and the breech flies back by itself, ejecting



GERMAN LUGER
AUTOMATIC
CALIBER 7.65 MM.

the shells straight up and over the head of the shooter. The Luger pistol is also furnished with a holster stock attachment.

The Lugers are made in a number of models in both .30 or 7.65 mm. caliber and 9 mm. or approximately .35 caliber, the 9 mm. being a cartridge very similar to our .38 automatic. Lugers are made in barrel lengths from 3½ to 9 inches and in varying grades. Those stamped DWM or marked with a date prior to 1917 are apt to be good quality weapons. This is especially the case with Luger pistols marked with the United States eagle and thirteen stars on the top of the breech of the barrel, as such weapons were imported for use and sale in this country before World War I and are all of fine quality.

However, toward the end of the war and after it, a great many Lugers of extremely poor quality were made and many of them were imported for sale in this country. As the Luger cartridges are very powerful, it is advisable to examine Luger pistols with some care. If they appear to be crudely and badly made, it is best to keep away from them.

The Luger has the usual thumb safety on the left side of the frame and, being a hammerless pistol, cannot be carried uncocked. In order to load for immediate use, it is advisable to leave the chamber empty and work the action once by pulling up and back on the knurled knobs at the top of the frame, thus drawing a cartridge from the magazine into the chamber.

A further safety device on the Luger is the cartridge extractor which appears in the top center of the bolt. When a cartridge is in the chamber, this extractor protrudes slightly above the surface of the bolt and the German word *Geladen* (loaded), can be read from the left side of the extractor. Even in the dark, a finger rubbed over the top of the bolt and extractor will determine immediately whether or not a Luger pistol is loaded. Some of the Luger pistols not fitted for shoulder stocks also have a grip safety similar to the .45 Colt automatic on the back of the grip. The Lugers in general are powerful and efficient weapons and perfectly satisfactory for military use.

Less common European military automatics are the Bayards, Bergmans and several models of Steyr-Mannlieher, Austrian pistols. All these pistols are approximately 9 mm., but they all take slightly different cartridges and trouble might result from using the wrong cartridge. Pistols of this type should be avoided unless there is absolute certainty that the right ammunition is being used with them.

POCKET MODELS

In the period shortly after World War I, this country was flooded with a great quantity of foreign pocket automatic pistols, mostly of .25, .32 and .380 caliber. While some were

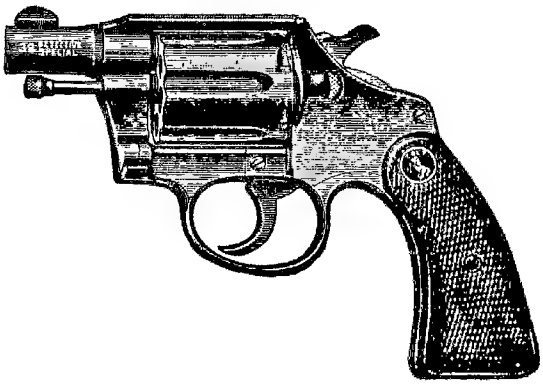
of good quality and perfectly reliable, particularly the German pocket Mauser and Ortgies, it is just as well to keep away from them if possible, unless someone is very familiar with automatic pistols in general. These weapons are apt to be of poor workmanship and soft materials so that while one may work for a short time, it may very readily get out of order and cause an unfortunate accident. The light caliber ammunition used in this type is not ideal for guard purposes and they form a class which those who must handle firearms safely should avoid.

THE LIGHT .38'S AND .32'S

The lightest group of pistols which are suitable for State Guard purposes are the light frame .38's and .32's and the pocket automatics made in this country. These weapons have the virtues of concealment and light weight for carrying and for Commando-type work are a surprise weapon of some power. Some of the light-frame .38's are chambered for the .38 special cartridge, and the 2-inch barrel model, listed as the "Detective Special," is a very desirable weapon as a pocket or concealed arm.

All of these revolvers are hammer weapons, with the general characteristics of heavier pistols, except the Smith

SMITH AND WESSON
HAMMERLESS
REVOLVER
CALIBER .38

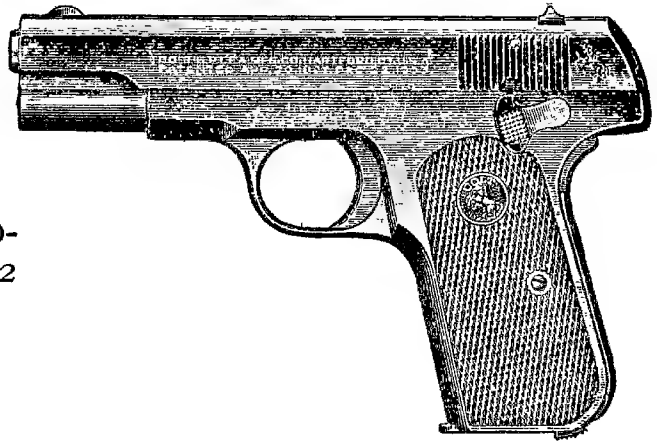


COLT SHORT-BARRELED REVOLVER CALIBER .38 SPECIAL

and Wesson, "New Departure Hammerless" revolvers. These latter are made in .38 and .32 Smith and Wesson caliber in light pocket models and they have no hammers visible. Thus they must be fired entirely double action. They have a grip safety at the back which must be squeezed, in order to fire the arm, at the same time that the trigger is squeezed.

These weapons are relatively difficult to shoot accurately, although accurate shooting can be done with them. They should be used only for close-up work and surprise attacks from concealment. In general any of the .38 caliber revolvers comes within the range of "man-stopping" loads, as does the Colt .380 automatic pistol, which is a simple blow-back pocket automatic of light weight having the usual thumb safety on the left side of the frame and grip safety at the back. This is a hammerless weapon and must either be carried cocked with the safety on and the cartridge in the chamber or without a shell in the chamber and the action worked once to make the gun ready to fire.

The .32 caliber loads are for the most part not real man-stopping loads for combat purposes, in that a man hit with



COLT POCKET AUTOMATIC CALIBERS .32 AND .380

them may not be put completely out of action unless the shot is in an immediately vital spot. However, they are far better than no weapons at all. Since no one wants to be shot with any kind of weapon, a command to surrender backed by even a light gun will probably be obeyed. This applies also to the Colt .32 automatic pocket pistol which is exactly the same as the .380 in all respects, except the caliber.

The smallest of the automatics, the Colt .25, carries similar safeties to the other pocket automatics and uses a very small cartridge. Its principal virtue is its light weight and its concealability as it weighs less than a pound and can be covered completely by the open hand. Small weapons of this type were called "Kamerad" pistols by the American soldiers during World War I. German officers frequently concealed them in the palms of their hands as, with their cry of "Kamerad," they threw their hands up to surrender. When the opportunity came, they were sometimes able to shoot downward with a flip of the wrist. This was considered unsportsmanlike at the period, but war seems to have developed very definitely into war at present, and such things enter the category of good tricks if you can manage them.

REVOLVER INSTRUCTION

Any pistol or revolver of .38 caliber or over is capable of reasonably accurate shooting and sufficient power to kill a man at 100 yards or more. While target positions are desirable for target shooting, for military purposes it is perfectly all right and sometimes preferable to hold a revolver in both hands, to rest the hands or arms on any convenient object, or to lie or sit down for a steadier aim when there is time.

When possible, any revolver should be cocked and the trigger pulled single action. This is easier and more accurate than trying to pull the trigger with the hammer down, as the trigger then has to cock the hammer and revolve the cylinder, as well as release the hammer.

There are no safeties on any American hammer revolver, but all good makes of American revolvers have an automatic block of some sort which prevents the rebounding hammer from striking the primer or firing-pin unless the trigger is pulled. Thus, it is perfectly safe and advisable to carry revolvers fully loaded with cartridges in all the chambers.

The old-fashioned method of leaving the chamber under the hammer empty applies only to single-action weapons such as the single-action Army Colt or .44 Russian Smith and Wesson, which are relics of an older period. Safety in handling should be stressed, if anything even more than in connection with shoulder guns because a revolver can be moved so much more quickly than a heavy rifle that the lives of near-by people are very readily endangered by it. When carrying a revolver in the hand, walking or running, never put the trigger finger inside the trigger guard until you are ready to fire, and then stop moving, cock the revolver

if there is time, and squeeze the trigger, supporting the gun in any possible way.

When shooting a revolver from a support, do not rest the gun on the support, but rest the gun hand or hands. Otherwise the point of impact of the bullet in relation to the point of aim will be affected. Ballistic flip does occur in a revolver or pistol, particularly in a revolver.

Ballistic flip is a term applied to the movement of the barrel of a pistol or revolver after the shot has been fired and before the bullet has left the barrel. This is a positive, although a very small, movement. It is allowed for in the sights of all pistols and revolvers, so that the shooter does not have to consider it. This can be demonstrated by placing the sights of the revolver against a flat surface such as that of a wall. It will be noted that the barrel points outward from the wall when the sights are level against it, or in other words downward when the sights are on the top as the weapon is held in the hand. As the support of the hand is below the line of recoil of the handgun, the muzzle kicks upward as soon as recoil begins to take place. The sights are so arranged that this kick brings the line of the bore into the approximate line of sight before the bullet leaves the muzzle. Actually the center line of the bore is pointed about 20 inches below the point of aim at a distance of 20 to 25 yards when the sights are properly lined up. Thus, though there is movement before the bullet leaves the barrel, it need not ordinarily concern the shooter.

However, if the butt of the pistol is firmly supported on a hard surface, there will be less ballistic flip, and the bullet will strike low. This is the reason for supporting the revolver by the arm that holds it rather than by the revolver itself.

All revolvers and automatic pistols should be checked to make sure they are not loaded or to determine that they are loaded when men are using them or going on or off guard duty. At the range, pistols and revolvers should be carried with the action open. In the case of pistols the slide should be locked back if possible and the magazine removed. In the case of revolvers, the cylinder should be open and swung downward on its crane.

For teaching handgun shooting there are available a number of .22 caliber revolvers on the heavy .38 caliber frame, as well as several units for converting the .45 caliber automatic pistol to use .22 caliber long rifle ammunition. All these weapons are excellent for practice use as they save both noise and ammunition and can be used with relatively light backstops in crowded areas. Pistol practice should be along the same lines as rifle practice; in other words, from a practical, rather than a target, point of view. Bull's-eyes should be large and ranges should be short, as close as 5 yards if necessary for beginning, and never more than 15 yards at the outside. There are a number of books on target pistol shooting and several on practical pistol shooting which should be consulted and followed as closely as is practicable.

Alignment of sights and trigger squeeze are again the all-important features of pistol shooting and hitting the mark. Shooting with both hands and with a rest should be encouraged if necessary for a man to hit his mark. Such positions as sitting down with both elbows on the knees, both hands supporting the gun, and the back against a tree or wall, or a perfectly flat prone position with both arms holding the pistol directly in front of the shooter and as

close to the ground as possible are very good for State Guard purposes.

The prone position is especially good at night in that it reveals anyone else against the skyline but conceals the shooter as much as possible. In firing at night it is advisable either to jump or roll from behind the flash after each shot, as an opponent may fire back at the place he presumes the shooter to be.

In the various books on pistol shooting there are sections on practical police shooting which include a great many suggestions that should be studied and followed as much as possible. Bair's *Police Revolver Manual, Shooting* by J. H. Fitzgerald, and the revolver instruction manuals put out by the National Rifle Association are among the best available books on this subject for State Guard use.

The standard army instruction manuals on the automatic pistol are very good for automatic pistol training and are available from the Government Printing Office in Washington.

Handguns are extremely effective weapons in the hands of men who know how to use them and dangerous weapons in the hands of men who do not. Do not neglect either their potentialities or their dangers. See that everyone who carries one is as familiar with it as can possibly be managed.

Chapter 8

AMMUNITION *

GENERAL

IN GENERAL there are three periods of ammunition development, shotgun and pistol as well as rifle, as far as the present-day user is concerned.

The latest ammunition is all loaded with smokeless powder and with non-corrosive primers. Most military rifle ammunition is also loaded with metal-jacketed bullets.

This means that a gun fired exclusively with one brand of so-called non-corrosive or "Kleanbore" ammunition need not be cleaned after it is fired. As a matter of fact, the residue of the discharge leaves a preservative coating in the bore. This type of ammunition has been in use for about fourteen years and if one brand, and one brand only, of it is used exclusively in the gun, nothing more need be done about the gun as far as cleaning bore and chamber are con-

* Much of the ammunition available from sportsmen, including the rifled slugs for shotguns, is in strict interpretation prohibited for military use by International Law. However, police use of such ammunition, especially the rifled slugs, is widespread in this country, and insofar as the duties of defense units partake of police work, such ammunition is desirable. It is also always useful for practice firing. It is also possible, that by the time foreign invasion of this country occurs, if it ever does, disregard of the tenets of International Law will be even more widespread than it is today, and it is just as well to be prepared for all eventualities.

cerned. However, if more than one brand, even of non-corrosive ammunition, is used, it is advisable to clean the weapon as soon as possible after firing, as different chemical compounds are used by different manufacturers, and the combination of two of them may result in rust in the bore.

From the first decade of the 20th century to 1928, most of the ammunition made was smokeless-powder ammunition but with corrosive primers. As a State Guard may have to accept anything that it can get in the way of ammunition, some of this ammunition may turn up. It can be detected by the fact that the boxes do not carry any reference to non-corrosive or clean-bore qualities and by the apparent age of the boxes. This ammunition is perfectly safe to shoot, as smokeless-powder ammunition is apt to deteriorate and lose a certain percentage of its power after it becomes old. For automatics, it is best to get fresh ammunition whenever possible because such guns are designed to operate at the pressure for which the ammunition is loaded and a lowering of pressure will throw out the balance of the automatic mechanism, causing occasional malfunction.

Ammunition of types made prior to 1900 is very likely loaded with black powder and, of course, always has corrosive primers.

There is one danger attendant on the use of old black-powder ammunition: the powder may have pulverized in the case over a period of years. Normally grains of black powder are of one of several sizes depending on the size and type of cartridge being loaded. Black powder was always loaded under pressure; that is, in loading, the bullet was squeezed down on the powder in the cartridge. But this pressure occasionally will reduce all the grains of powder

to dust and cause a detonation rather than an explosion when the cartridge is fired.

This will build the pressure up far above normal for a given black-powder cartridge and if the action of the weapon being fired does not have a margin of safety in its strength, it is possible that the action may blow up.

When black-powder cartridges of doubtful age and quality are being used in any weapon, the weapon should be carefully inspected for condition to make sure it is strong enough to stand any pressure that may be developed. Doubtful weapons and doubtful ammunition should be discarded except as a last resort.

As has been said in a previous chapter, guns that are designed for black powder should not be used with the higher-pressure, smokeless loads that are now available in some of the old-type cartridges. Some of these old-type cartridges and rifles chambered for them are still being made, but loads have been pepped up to compare with more modern cartridges. The pressure has been built up to a point which earlier type actions could not stand. This is particularly the case in early lever-action rifles of various makes, such as Winchester, Marlin, Colt, and so forth.

Another caution is to make sure that any foreign rifle is used with the cartridge intended for it. Foreign markings are not always easy to understand. If there is any doubt, questionable combinations of foreign rifles and rifle ammunition should be avoided as they are fairly certain to cause accidents.

The ammunition which State Defense forces are likely to see falls under three general heads: rifle ammunition, shotgun ammunition, and pistol ammunition.

RIFLE AMMUNITION

Rifle ammunition will vary in power from the standard military cartridges of the .30—06 type to the "varmint" and the lightest feasible loads of the .38—40, .32—40, .32 Winchester automatic class. The characteristics of the standard military cartridges of the world today are, in general, similar. Since the development of the present-type ammunition during the 1890's most countries have adopted rifles chambered for bottle-necked cartridges using metal-jacketed bullets and smokeless powder. The cartridges vary in size from the 8 mm. loads which are approximately .315 inch in diameter at the bullet, the bullets weighing from 175 to 220 grains, down to 6.5 mm. cartridges of approximately .25 caliber with bullets weighing from 125 to 150 grains. The muzzle velocities of the various military cartridges run between 2300 and 2800 feet per second.

Among them may be mentioned the U. S. Cartridge, ball, caliber .30, model 1906, M1 and M2. These two cartridges are loaded to a muzzle velocity of approximately 2750 feet a second. The M1 uses a 172-grain boat-tailed bullet; the M2, a 150-grain flat-based bullet. The breech pressure of the M1 is about 48,000 pounds; that of the M2 about 38,000. The battle-sights of rifles using them are set at between 450 and 500 yards and the dangerous area at battle or point-blank range is given as 636 yards. The extreme range of these cartridges is nearly three miles. Their penetration in pine is 72 inches for the M1 and 60 inches for the M2. They will penetrate brick or sand for nearly 10 inches and go through 15 or 20 inches of solid oak.*

* See page 124.

These are the typical characteristics of most military cartridges of the present day. The majority of them use a rimless-type case so that they will feed better in automatic weapons and from the magazines of bolt-action rifles. Their breech pressures will average from 35,000 to 50,000 pounds and their dangerous areas from between 400 and 500 to slightly over 600 yards. Comparable to them are the more powerful hunting cartridges such as the .300 Savage, .270 Winchester, and cartridges of similar bullet weight and ballistics.

There is a broad group of medium-power hunting cartridges which have been developed from the late '90's to the present day which fall only slightly below the military-type ammunition and have ballistic characteristics, bullet types and general cartridge shapes very similar to the military cartridges although they are usually somewhat smaller. These include the Krag-Jörgensen or .30 Army, the .32 Special Winchester, .250—3000 Savage, the .348 Winchester, down to the .30-30 Winchester on the low side, and the foreign sporting cartridges of medium power such as the 6.5 mm. Mannlicher Sporter and other similar cartridges. Their dangerous area with a sight setting between 300 and 400 yards will be on the average between 400 and 500 yards. They are designed to go in modern-type rifles of either bolt- or lever-action models and are a powerful and very useful group of cartridges, especially for the short ranges at which most State Guard work will probably be done. Some of these cartridges will probably carry as much as two miles and possibly a little over. They are certainly unsafe to fire in any thickly populated area or against any frame building which the shooter does not want to penetrate

as they have penetration in wood that is probably from one-half to two-thirds that of the standard military cartridges.

The lighter-calibered group of modern cartridges, the so-called "varmint" cartridges such as the .22 Hornet, .219 Bee, and similar loads should be avoided for State Guard purposes. They have excellent accuracy at relatively short range and man-killing power, since they are mostly expanding type bullets, but the bullets are so light that long-range work is not satisfactory with them and they have no penetration qualities whatever. They go to pieces as soon as they hit almost anything with any resistance.

The older type cartridges, most of them developed between 1870 and 1900, form a large group of which considerable use can be made. The most powerful of these cartridges are the heavy-caliber hunting and military cartridges of the last quarter of the 19th century. These range from the .45—70 and .45—90 through the various large hunting calibers such as .40—82, .38—56, .38—72, .44—77 and similar loads down to the short, stubby cartridges designed for the early repeating rifles such as the .44—40, .38—40 and the like. Some of the very long target cartridges of relatively small caliber, such as the .38—55 and .32—40, have power enough to be useful at 200 yards and slightly over.

This whole group of cartridges has several characteristics in common. They usually have either a straight or slightly tapered rimmed case. The bullets are, for the most part, of large diameter in relation to their length and the length of the cartridge overall. Especially in the large calibers, they are apt to be several times as heavy as the present run of military bullets. The designations nearly always carry two

or three numbers in series with dashes between, such as .45—70—500 or .44—77—330. These designations apply to the original black-powder load for these cartridges and give the diameter of the bullet at its base, the weight of the powder charge, and the weight of the bullet in grains in that order. The standard cartridge for the .45—70 Government model 1873 rifle had a .45 caliber bullet weighing 500 grains and backed by 70 grains of powder.

These cartridges, for the most part, run in velocities between 1300 and 1600 feet per second. The heavy bullets carry out well as far as stability and accuracy is concerned. But the trajectory is very high and few long-range hits can be expected from them except in the hands of someone capable of judging distance, estimating windage, and setting his sights properly for the conditions. They are not very satisfactory at a battle-sight setting of over 200 yards with an expected dangerous area of 250 to 275 yards. However, this is considerably more than double the effective range of any available shotgun, so guns chambered for these cartridges should not be turned down unless something better is available.

Approximately equal in dangerous area to this range of cartridges are a few medium-power cartridges designed for the Remington and Winchester automatic rifles made from the first decade of the 20th century to the present day. These are designated as .32 Winchester, .35 Winchester, Remington, and so on. They use bullets of medium to heavy weight at velocities in the upper brackets of this group, ranging from 1600 to 1900 feet per second. At a sight setting of 200 to 250 yards a dangerous area of 275 to 325 yards can be expected from them.

AVERAGE BALLISTICS OF PETERS "RUSTLESS" CENTER FIRE RIFLE CARTRIDGES

"RUSTLESS" Center-Fire Sporting and Military Sizes	Bullet Weight Grains	Type of Bullet	Velocity		Energy		Mid-Range Trajectory			Penetration ⅞" Pine Boards
			Muzzle (Ft. per Sec.)	at 100 Yds.	Muzzle (Ft. Lbs.)	at 100 Yds.	100 Yds.	200 Yds.	300 Yds.	
.22 Hornet	45	M. C. H. P.	2650	2080	700	430	0.8	4.0	12.5	12
.22 Savage High Power	70	S. P.	2810	2400	1230	900	0.7	3.0	8.0	12
6.5 m/m Mannlicher-Schoenauer	123	M. C. H. P.	2450	2160	1640	1270	0.8	4.0	10.0	15
6.5 m/m Mannlicher-Schoenauer	160	M. C. H. P.	2160	1950	1660	1350	1.0	4.5	11.5	17
.25/20 Repeater	86	Lead	1450	1190	400	270	2.6	11.5	31.5	9
.25/20 Repeater HIGH VELOCITY	60	M. C. H. P.	2210	1700	650	385	1.1	6.0	18.5	8
.25/20 Repeater HIGH VELOCITY	86	S. P.	1710	1380	560	365	1.8	9.0	25.0	8
.25/20 Single Shot	86	S. P.	1380	1150	365	255	2.6	13.0	33.5	8
.250 Savage	87	S. P.	3000	2710	1740	1420	0.5	2.5	6.0	12
.250 Savage	100	M. C. H. P.	2810	2480	1755	1375	0.6	3.0	7.0	11
.25/35 Winchester	117	S. P.	2280	1970	1350	1010	1.0	4.5	12.0	12
.25 Remington	117	S. P.	2300	2020	1375	1060	0.9	4.5	11.0	12
.270 Winchester	130	Prot. Pt.	3120	2880	2810	2395	0.5	2.0	5.0	13
.270 Winchester	150	S. P.	2770	2490	2555	2065	0.6	3.0	7.0	15
7 m/m Mauser	175	S. P.	2460	2220	2350	1915	0.8	3.5	9.0	12
.30/30 Win. Mar. Sav.	180	BELTED	2120	1840	1800	1360	1.0	5.0	15.0	22
.30/30 Win. Mar. Sav.	170	S. P.	2200	1930	1825	1405	1.0	4.5	12.0	12
.30/30 Win. Mar. Sav.	160	M. C.	2200	1910	1720	1300	1.0	5.0	12.5	42
.30/30 Win. Mar. Sav.	165	M. C. H. P.	2200	1920	1770	1350	1.0	4.5	12.5	12
.30/30 Win. Mar. Sav.	125	M. C. H. P.	2560	2160	2110	1500	0.8	4.0	10.5	14
.30 Remington	180	BELTED	2070	1800	1720	1300	1.0	5.5	14.5	20
.30 Remington	170	S. P.	2170	1900	1780	1365	1.0	5.0	12.5	12
.30 Remington	160	M. C.	2170	1880	1675	1255	1.0	5.0	13.0	42
.30 Remington HIGH VELOCITY	165	M. C. H. P.	2170	1890	1730	1310	1.0	5.0	12.5	12
.30 Remington HIGH VELOCITY	125	M. C. H. P.	2450	2060	1670	1180	0.9	4.0	11.5	14
.30/40 Krag	220	M. C.	2190	1980	2345	1915	1.0	4.5	11.0	25
.30/40 Krag	150	Prot. Pt.	2660	2430	2360	1970	0.7	3.0	7.5	16
.30/40 Krag	180	S. P.	2480	2210	2460	1955	0.8	3.5	9.0	16
.30/40 Krag	180	BELTED	2380	2080	2260	1730	0.9	4.0	12.0	25
.30/40 Krag	225	BELTED	2110	1890	2230	1790	1.0	5.0	12.5	27
.30/06 Springfield	150	M. C.	2960	2720	2920	2465	0.5	2.5	6.0	75
.30/06 Springfield	180	S. P.	2710	2420	2940	2340	0.7	3.0	7.5	11
.30/06 Springfield	180	Prot. Pt.	2690	2500	2895	2500	0.6	3.0	7.0	19
.30/06 Springfield	180	BELTED	2720	2400	2960	2300	0.7	3.0	8.0	27
.30/06 Springfield	220	S. P.	2410	2190	2840	2345	0.8	3.5	9.0	20

.30/06 Springfield	172	Boat Tail	2700	2500	2785	2385	0.6	3.0	6.5	70
.30/06 Springfield	225	BELTED	2310	2070	2670	2150	0.9	4.0	10.5	33
.300 Magnum	225	BELTED	2560	2310	3270	2680	0.5	3.0	8.0	35
.300 Savage	200	BELTED	2220	1960	2190	1710	1.0	4.5	12.0	26
.300 Savage	150	Prot. Pt.	2660	2430	2360	1970	0.7	3.0	7.5	14
.300 Savage	180	M. C. H. P.	2380	2140	2265	1830	0.8	4.0	10.0	14
.303 British	215	S. P.	2160	1940	2230	1795	1.0	4.5	11.5	13
.303 Savage	180	BELTED	2120	1840	1800	1360	1.0	5.0	13.5	23
.303 Savage	195	S. P.	1960	1740	1665	1310	1.3	6.0	14.5	11
8 m/m Mauser (7.9 m/m)	170	S. P.	2530	2210	2425	1845	0.8	3.5	9.0	13
8 m/m Mannlicher-Schoenauer	200	S. P.	2105	1940	2055	1670	1.1	4.5	11.5	12
.32 W. C. F. (32/20)	100	M. C.	1280	1060	365	250	3.1	15.0	40.5	11
.32 W. C. F. (32/20) HIGH VELOCITY	80	M. C. H. P.	2050	1520	745	410	1.4	7.5	23.0	9
.32 W. C. F. (32/20) HIGH VELOCITY	100	S. P.	1670	1280	620	365	2.0	10.0	28.0	9
.32 Win. Special	180	BELTED	2200	1910	1940	1460	1.0	5.0	12.5	23
.32 Win. Special	170	S. P.	2260	1960	1930	1450	1.0	4.5	12.0	12
.32 Win. Self Loading	165	S. P.	1390	1190	710	520	2.6	12.5	31.0	9
.32 Remington	180	BELTED	2070	1800	1715	1295	1.2	5.5	14.0	26
.32 Remington	170	S. P.	2200	1910	1830	1380	1.0	5.0	13.0	16
.32/40 Win. Mar. Sav.	165	S. P.	1440	1230	760	555	2.6	12.0	28.0	10
.32/40 Win. Mar. Sav. HIGH VELOCITY	165	S. P.	1950	1650	1395	1000	1.4	6.5	17.5	10
.33 Winchester	200	S. P.	2180	1870	2110	1555	1.1	5.0	13.5	13
.348 Winchester	210	BELTED	2510	2180	2850	2220	0.8	3.5	10.0	20
.348 Win. HIGH VELOCITY	150	S. P.	2880	2380	2765	1890	0.6	3.0	8.5	15
.348 Win. HIGH VELOCITY	200	S. P.	2520	2160	2820	2075	0.8	4.0	10.0	17
.35 Win. Self Loading	180	S. P.	1390	1170	775	545	2.5	13.0	31.0	9
.35 Remington	210	BELTED	2080	1760	2020	1450	1.2	5.5	15.0	26
.35 Remington	200	S. P.	2180	1870	2110	1555	1.0	5.0	13.0	16
.351 Win. Self Loading	180	S. P.	1850	1560	1370	975	1.5	7.5	19.0	13
.351 Win. Self Loading	177	M. C.	1850	1560	1345	960	1.5	7.5	19.0	26
.35 Winchester	250	S. P.	2160	1910	2590	2025	1.1	5.0	12.0	15
.38 W. C. F. (38/40)	180	S. P.	1310	1090	685	475	3.2	15.5	37.5	10
.38 W. C. F. (38/40) HIGH VELOCITY	180	S. P.	1770	1380	1255	760	1.7	9.0	24.5	14
.38/55 Win. Mar. Sav.	255	S. P.	1320	1150	985	750	3.0	13.5	32.5	14
.38/55 Win. Mar. Sav. HIGH VELOCITY	255	S. P.	1600	1370	1450	1065	1.9	9.0	24.5	14
.38/56 Win. Mar.	255	S. P.	1400	1210	1110	830	2.7	11.5	29.0	12
.40/65 Win. Mar.	260	S. P.	1360	1170	1070	790	2.9	12.0	30.5	12
.40/82 Win. Mar.	260	S. P.	1500	1260	1300	915	2.3	11.0	27.0	11
.401 Win. Self Loading	200	S. P.	2140	1750	2035	1360	1.1	5.5	16.5	14
.405 Winchester	300	S. P.	2220	1940	3285	2510	1.0	4.5	12.0	13
.44 W. C. F. (44/40)	200	M. C.	1300	1070	755	510	3.3	17.5	38.0	13
.44 W. C. F. (44/40) HIGH VELOCITY	200	S. P.	1570	1220	1095	660	2.2	11.0	30.0	11
.45/60 Winchester (Not Rustless)	300	Lead	1390	1170	1285	910	2.6	12.5	30.5	11
.45/70 U. S. Government	405	S. P.	1310	1160	1545	1210	2.8	14.0	32.5	15
.45/90 Win. Mar.	300	S. P.	1530	1270	1560	1075	2.2	11.0	26.5	15

200-YARD TRAJECTORIES OF BLACK POWDER AMMUNITION

Caliber.	Powder, weight in grains.	Bullet, weight in grains.	Length of barrel in inches.	Height of Trajectory in Inches at 25 yards.	50 yards.	75 yards.	100 yards.	125 yards.	150 yards.	175 yards.	200 yards.
.22	5	30	28	8.3	14.5	18.7	20.4	19.8	16.2	9.4	0
.22	10	45	26	7.3	12.8	16.2	17.6	16.6	13.7	8.1	0
.22	15	45	30	5.3	9.4	12.2	13.5	13.1	10.8	6.5	0
.25	20	67	28	3.6	6.4	8.3	9.4	9.2	7.6	4.7	0
.25	20	77	26	5.4	9.0	11.6	12.8	12.3	10.2	6.0	0
.32	13	90	24	7.5	13.5	17.5	19.2	18.4	15.0	8.9	0
.32	35	147	28	4.1	7.3	9.3	10.2	9.8	8.0	4.7	0
.32	35	165	28	4.5	8.0	10.2	11.2	10.9	8.8	5.2	0
.32	40	165	30	4.9	8.6	11.0	11.9	11.5	9.4	5.5	0
.35	60	245	28	4.7	8.1	10.4	11.3	10.9	8.8	5.2	0
.38	50	255	28	6.1	10.5	13.4	14.5	13.6	10.9	6.4	0
.38	50	330	28	6.6	11.4	14.5	15.5	14.6	11.7	6.6	0
.40	60	265	28	4.5	7.9	10.2	11.2	10.8	8.8	5.2	0
.40	60	330	28	5.2	9.3	11.8	12.7	12.2	9.8	5.9	0
.40	62	210	28	4.4	7.8	10.3	11.4	11.1	9.2	5.5	0
.40	75	230	28	4.1	7.2	9.3	10.1	9.7	7.8	4.6	0
.40	82	260	30	4.1	7.4	9.6	10.5	10.2	8.4	5.2	0
.40	90	300	26	4.3	7.5	9.5	10.3	9.7	7.8	4.6	0
.40	95	265	34	2.9	5.4	7.2	7.6	7.4	6.0	3.7	0
.40	95	380	34	3.5	6.3	8.0	8.7	8.3	6.6	4.1	0
.40	110	260	30	3.7	6.5	8.4	9.1	8.7	7.1	4.2	0
.44	40	200	24	6.0	10.8	14.0	15.4	14.8	12.1	7.2	0
.44	90	520	34	4.0	7.2	9.3	10.4	9.7	7.9	4.7	0
.45	60	300	28	5.5	9.5	12.0	13.0	12.4	10.0	5.9	0
.45	70	405	32.6	5.1	8.9	11.2	12.0	11.3	9.1	5.4	0
.45	75	350	28	4.7	8.3	10.5	11.4	10.8	8.8	5.2	0
.45	85	290	28	4.3	7.5	9.5	10.4	9.9	8.0	4.8	0
.45	90	300	30	4.5	7.9	10.0	11.0	10.6	8.7	5.2	0
.45	109	550	36	4.6	7.9	10.0	10.8	10.2	8.2	4.8	0
.45	125	300	30	4.0	7.0	8.9	9.8	9.4	7.7	4.5	0
.50	110	300	30	..	..	..	11.5	..	..	..	0
.50	115	300	26	3.9	7.1	9.4	10.6	10.4	8.7	5.3	0

SHOTGUN AMMUNITION

Shotgun cartridges for State Guard use will fall generally into four categories. What has been said previously concerning smokeless loads, corrosive and non-corrosive primers, and black-powder loads applies to shotgun shells as it does to rifle cartridges.

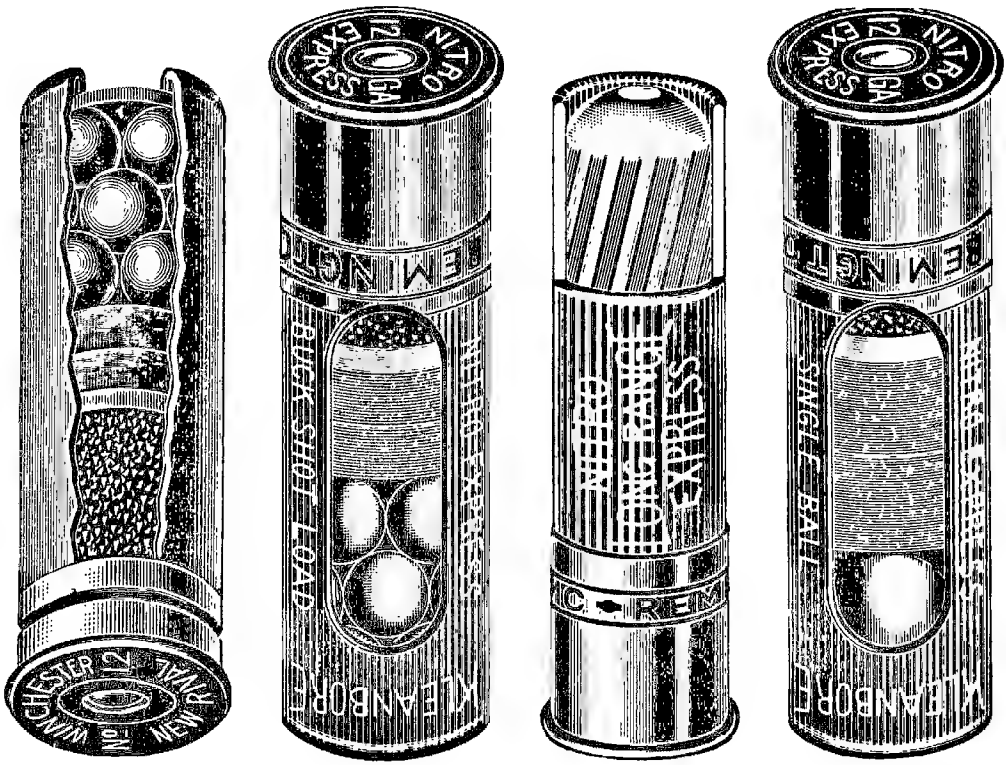
Shotgun shells loaded with the various sizes of small shot are useful only for close-range riot work where it is not desired to do any real damage to the crowd fired upon. Small shot rapidly loses its momentum and effectiveness and is incapable of delivering a serious wound to a person except under unusual circumstances beyond the distance of 40 or 50 yards.

The three loads which are most commonly used for police and military shotgun work are buckshot, ball loads and rifled slug loads. There are two standard buckshot loads in general use by police and the military: one carries a load of twelve single 0 buckshot and the other nine 00 buckshot. The nine 00 buckshot is the better load because the 00 buck are heavier and will carry further and do more damage than the 0. Single 0 buckshot has a diameter of .32 inches and a weight of approximately 48 grains. Double 0 buck has a diameter of approximately .34 inches and a weight of 67.5 grains. Both of these loads have a muzzle velocity of approximately 1100 feet per second and a penetration in pine of about 4 inches.

The spread as they travel forward is at the rate of about one inch to the yard. The extreme range with the gun held at an angle of about 35 degrees is in the neighborhood of 500 yards as a round ball is the poorest ballistic shape for a given weight of lead.

Buckshot in general are very uncertain against an individual at more than 60 or 70 yards but can be fired effectively at a group at ranges up to 100 yards or more and can be used for area fire to the distance of their extreme range.

The round-ball loads for shotgun cartridges in 12 gage use a round lead ball approximately .645 inches in diameter and weighing about one ounce. As far as accuracy and range goes, this round ball fired from a smooth-bore barrel is subject to the same objection as buckshot. It is a poor type missile and at over 50 or 60 yards a hit on an individual



00 Buckshot | Rifled Slug | Round Ball

MILITARY AND POLICE SHOT LOADS

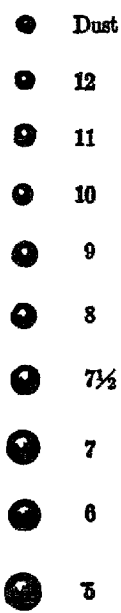
cannot be expected from it consistently. Its extreme range is not much over that of buckshot, some 500 or 600 yards. This also is obtained with the gun held at an angle of about 35 degrees. It has, however, great smashing power at any distance at which it can be controlled. It will penetrate the body of a car, smash up the engine, or do fearful execution upon hitting an individual. It has a muzzle velocity of approximately 1400 feet per second in the high velocity police and military loads.

The best individual shotgun missile which is loaded in this country is the so-called rifled slug. The rifled slug is a cylindrical projectile with a rounded nose and a deeply hollowed base. It weighs one ounce in the 12-gage shotgun load. Slanting grooves on its surface are supposed to take effect on the steel of the barrel and also in the air and spin the slug for stability and accuracy at longer ranges than a round ball. Both from this feature and from its better balance, owing to the hollow base and cylindrical sides, the rifled slug is accurate over more than twice the range of the round ball. Ten-inch groups at 100 yards are perfectly possible with it and a man can usually be hit considerably further away than this. It has even greater smashing effect on automobiles and other solid surfaces than the round ball, and its extreme range is nearly a mile. It has approximately the same muzzle velocity as the round-ball load, 1400 feet a second, but is a far more efficient projectile.

As has been said before, modern smokeless loads for any cartridge or shell are far too powerful for definitely and obviously old-type weapons. Shotguns with twist barrels, old hammer guns, and guns that are obviously in poor condition should not be used with any of the powerful modern

SHOT SIZES UP TO ooo BUCK

STANDARD SIZES, SOFT AND CHILLED



No.	Chilled Shot No. in Oz.	Soft Shot No. in Oz.	Diameter in Inches	Diameter in Millimeters
Dust	4565		.04	1.02
12	2385	2326	.05	1.27
11	1380	1346	.06	1.52
10	868	848	.07	1.78
9	585	568	.08	2.03
8	409	399	.09	2.28
7½	345	338	.09½	2.41
7	299	291	.10	2.54
6	223	218	.11	2.79
5	172	168	.12	3.02

No.	Chilled Shot No. in Oz.	Soft Shot No. in Oz.	Diameter in Inches	Diameter in Millimeters
4	136	132	.13	3.30
3	109	106	.14	3.53
2	88	86	.15	3.78
1	73	71	.16	4.06
B		59	.17	4.32
Air Rifle		55	.17½	4.44
B B		50	.18	4.57
B B B		42	.19	4.83
T		36	.20	5.08
T T		31	.21	5.33
F		27	.22	5.59
F F		24	.23	5.84

BUCKSHOT

Eastern Size	Western Size	Diameter in Inches	Diameter in Millimeters	Balls in lbs. (About)
4	....	.24	6.09	341
3	8 or 9	.25	6.35	299
2	7	.27	6.86	238
1	5 or 6	.30	7.62	175
0	4	.32	8.13	144
00	3	.34	8.64	122
000	2	.36	9.14	103

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AVERAGE BALLISTICS OF REMINGTON "KLEANBORE" RIOT LOADS

	Instrumental Velocity	
	Ft. Seconds	*At these Ranges*
12 Ga. Nitro Express No. 0 Buck, Protected Crimp	1100	40 yds.
12 Ga. Nitro Express No. 00 Buck, Protected Crimp	1100	40 yds.
12 Ga. Nitro Express No. 0 Buck, 12 Pellets	1100	40 yds.
12 Ga. Nitro Express No. 00 Buck, 9 Pellets	1100	40 yds.
12 Ga. Nitro Express Rifled Slug	1400	100 ft.
12 Ga. Nitro Express Single Ball	1400	40 yds.

TABLE OF SHOT SIZES AND WEIGHTS

LEAD BALLS

Name	*Diameter in Inches*	*Diameter in Millimeters*	*Approx. No. of Balls per Lb.*	*Weight in Grains*
10-Gage	.710	18.03	13½	520.0
12-Gage	.645	16.38	17	412.0
16-Gage	.610	15.49	20½	342.0
20-Gage	.545	13.84	28½	246.0
24-Gage	.542	13.76	29½	238.0
28-Gage	.510	12.95	35	199.0
½-Inch	.500	12.70	38	189.0
.45—5 Armory Practice	.452	11.48	50	139.0
.44 S. & W. Russian Gallery	.428	10.87	58	118.0
.44 Game Getter	.425	10.79	60	116.0

loads and they should not be used at all if anything else can be found to take their place. If they must be used, it is possible to obtain "low-pressure" smokeless loads which are supposed to produce pressure not greatly in excess of that of the original black-powder loading. Nothing heavier should be used in such weapons.

PISTOL AND REVOLVER AMMUNITION

Center-fire pistol and revolver ammunition is loaded in this country in a great variety of calibers from .45 down to .25 in revolver and automatic pistol cartridges. The previous description of non-corrosive primers, smokeless- and black-powder loads applies, as of the same periods, to pistol and revolver ammunition.

Revolver ammunition has, however, changed less in general design of cartridge and bullet since its introduction in the late 1860's than has rifle ammunition. A great many of the earlier revolver cartridges were designed for conversions of cap and ball revolvers which had been rechambered and redesigned to take the new metallic, self-exploding ammunition of the 1860's.

Perhaps the principal differences between the ammunition of that day and the present, except for smokeless powder, corrosive primers, etc., was the prevalence of large-caliber, rim-fire cartridges. These have practically disappeared from present-day use.

Revolvers of the percussion-cap period had been designated as .31 caliber, .36 caliber, and .44 caliber in the commonest types. Thus, the earliest cartridges that fitted them were approximately the same sizes, although the designations changed in the case of the first two to .32 caliber and

.38 caliber, the .44 caliber remaining the same. With the advent of the Smith and Wesson Army and the Colt model 1873, Single-Action Army revolvers, the .45 caliber was added to pistol cartridges, exclusively in a center-fire load.

The majority of modern revolver cartridges fall into one of these broad designations and they vary in power according to their size, bullet weight, and powder capacity. Most revolver cartridges in standard velocities run between 750 and 900 feet per second in muzzle velocity. In the larger and heavier bullet sizes the striking force is, of course, improved, and large powder charges are required to drive the heavier bullet. The .45 caliber cartridges common in this country at the present time, notably the .45 Colt automatic pistol cartridge and the .45 Colt rimmed revolver cartridge, use bullets between 230 and 250 grains in weight with a striking force of between 300 and 400 foot pounds. The .44—40 and .44 Special cartridges, also used in revolvers, approximate the above figures very closely.

In general, two types of cartridge cases are used in handguns. These are the older type rimmed case which seats in the chamber of the cylinder and is held from falling through by a projecting rim, and the rimless cartridge, which is more commonly used in automatic pistols, but occasionally in revolvers, which has no extraction rim and is designed to rest in the chamber of an automatic pistol with the forward edge of the cartridge resting against the end of the chamber and the extractor hooked into the extraction groove which is cut into the thickness of the head of the case.

Revolver cartridges, for the most part, still use plain lead bullets. Automatic pistol cartridges nearly all use jacketed bullets similar to military rifle bullets.

The next large group of pistol and revolver cartridges below the .44 and .45 types is the .38 caliber group. One of the commonest of these revolver cartridges is designated as the .38 Smith and Wesson or Colt New Police. These are short cartridges with cases larger in diameter than the standard .38 case and bullets weighing about 158 grains. They are medium-power cartridges and are used in lightweight police and pocket revolvers for the most part. They will not fit in a revolver marked .38 Special and are designed for revolvers marked .38 S & W or .38 Colt New Police. They will fit no other weapons.

The .38 Special cartridge has a case slightly smaller in diameter and a bullet of very slightly smaller diameter than the .38 Smith and Wesson. The case is somewhat longer. This is a very powerful .38 caliber cartridge and is loaded in two velocities: standard speed and high velocity. Standard speed is between 800 and 900 feet per second and the high velocity between 1100 and 1200.

They are loaded with various types of bullets, some of hard metal and some with metal jackets for police use and piercing automobiles. They are also loaded in flat-end type wad-cutter bullets for target use which make excellent man-stoppers from the shock that they deliver. The striking force of the bullets runs from 260 to 300 to between 300 and 400 foot pounds. If this is all delivered within the person of an individual he is very likely to be put out of action. This is the standard ammunition for heavy-frame .38 caliber revolvers.

Cartridges which will fit in the same chamber as the .38 Special are the .38 long and short Colt revolver cartridges. These are nearly obsolete cartridges that were designed dur-

ing the last third of the 19th century and are used relatively little today. The .38 long Colt is about halfway in power between the .38 Smith and Wesson or New Police and the .38 Special. The .38 short Colt is a little less powerful than a .38 Smith and Wesson or New Police. They have no particular use at the present time as any revolver chambered for them will take the more powerful .38 Special which has numerous advantages.

The present-day .38 caliber automatic pistol cartridge, the Colt Super .38 Automatic Pistol cartridge, is one of the most powerful pistol cartridges available so far as actual foot pounds of blow is concerned. It has a muzzle velocity of 1300 feet per second. It lacks knock-down power as the bullet is metal jacketed and relatively small in diameter so that its better than 400 foot pounds of energy is, in a great many cases, wasted on the air behind the shoulder blades of the person hit.

However, it has remarkable penetration qualities and a very flat trajectory for long-range shooting. The old .38 automatic Colt cartridge, not marked Super .38, which should always be used in the old-type .38 Colt automatics, is less powerful than the Super .38 but is one of the more powerful .38 caliber cartridges in its own right. It has a muzzle velocity of around 1100 feet per second and a striking force of better than 300 foot pounds.

The most unusual of the .38 caliber cartridges is the ".357 Magnum," Smith & Wesson cartridge. This cartridge is the same diameter as the standard .38 Special and takes the same diameter bullet, as the bullet of the .38 Special is actually .357 of an inch in diameter, but the case is something over 1/10 of an inch longer than the .38 Special.

The bullet is a semi-wad-cutter type with a flat nose and a shouldered conical front section. It is driven at over 1500 feet per second by a very powerful charge of smokeless powder. As this bullet is of plain lead and going fast enough to mushroom, it is a tremendously effective bullet for any kind of man-stopping or hunting work. The bullet will spread to a diameter of larger than .45 caliber on meeting reasonable resistance and it will penetrate most surfaces to a far greater depth than any other pistol or revolver bullet.

There is one feature of this ammunition which should be watched very carefully. While all modern revolvers intended for the .38 Special cartridge are shouldered at the forward part of the chamber so that the Magnum cartridge cannot be put into them, some of the very early military .38 caliber revolvers, made prior to 1900, have no shoulders in their chambers and it would be possible to put a .357 Magnum cartridge into such a gun and fire it once. As it is extremely unlikely that enough of the revolver could be found to fire another round, the procedure should be avoided very carefully.

The shortest .38 caliber automatic pistol cartridge made in this country is the .380 automatic Colt pistol cartridge, designed to be used in a .380 caliber Colt automatic pistol on the same frame that is also chambered for the .32 Colt automatic pistol cartridge. This cartridge is about the length and has about the ballistic characteristics of the .38 New Police or the .38 Smith and Wesson cartridge. It is a medium- to light-power pistol cartridge and just about on the border as a man-stopping load.

Below the .38 caliber cartridges is the group of .32 caliber pistol and revolver cartridges. These include the .32 Colt

New Police or .32 Smith and Wesson, the .32 long, and the .32 Colt automatic types. These are relatively low-powered cartridges and have a striking force in the neighborhood of 100 to 130 or 140 foot pounds for the most part. They are perfectly satisfactory for killing purposes but they are a little light for combat as a man hit with one of them may well retain sufficient of his faculties to shoot back or escape, even though mortally wounded.

The smallest of all the center-fire cartridges is the .25 Colt automatic pistol cartridge and this, even more than the .32's, is too light for combat work although perfectly effective for killing purposes. In the hands of an extremely good shot, these light cartridges can be used to kill quickly enough to avoid any unpleasant returns, but, whenever possible, weapons of .38 caliber or above should be obtained for any form of serious work.

All revolver and automatic pistol cartridges, while they are difficult to shoot accurately at ranges of more than 100 yards because of the limitations of the weapon in which they are used, are capable of carrying from half a mile to a mile if fired at an angle into the air. Pistols or revolvers should not be regarded as relatively harmless weapons simply because they are usually used at short range. The round-nosed lead bullet of fair weight and medium velocity will glance from a hard surface or a pond and ricochet amazing distances. The nature and type of these weapons make it advisable that extra care be taken with them.

Average Ballistics of Remington Oil Proof Pistol and Revolver Cartridges

CALIBER	Type of Bullet	Weight of Bullet	Muzzle Velocity	Approx. Muzzle Energy	Penetrat'n 7/8" Pine Boards
.25 (6.35 m/m) Automatic Pistol	M. C.	50	820	75	3
.30 (7.63 m/m) Mauser Automatic Pistol	M. C.	85	1420	380	11
.30 (7.63 m/m) Mauser Automatic Pistol	S. P.	90	1420	400	11
.30 (7.65 m/m) Lüger Automatic Pistol	M. C.	93	1250	325	11
.30 (7.65 m/m) Lüger Automatic Pistol	S. P.	93	1250	325	11
.30 (7.65 m/m) Lüger Automatic Pistol	H. Pt.	93	1250	325	11
.32 Smith & Wesson*	Lead	88	720	100	3
.32 Smith & Wesson	Lead	88	720	100	3
.32 Smith & Wesson, Long*	Lead	98	820	146	4
.32 Smith & Wesson, Long	Lead	98	820	146	4
.32 Smith & Wesson, Long	M. Pt.	95	820	142	4½
.32 Short Colt	Lead	80	800	114	3
.32 Long Colt	Lead	82	800	117	3
.32 Colt New Police (Police Positive)	Lead	100	795	139	3
.32 (7.65 m/m) Automatic Pistol	M. C.	71	980	152	5
9 m/m Lüger Automatic Pistol	M. C.	124	1150	365	10
.357 Magnum	M. Pt.	158	1510	800	12½
9 m/m Lüger Automatic Pistol	H. Pt.	124	1150	365	10
.380 (9 m/m) Automatic Pistol	M. C.	95	970	199	5½
.38 Super Automatic Colt Pistol	M. C.	130	1300	488	10
.38 Super Automatic Colt Pistol	H. Pt.	130	1300	488	10
.38 Colt Automatic Pistol	M. C.	130	1070	331	9
.38 Smith & Wesson*	Lead	146	745	180	4
.38 Smith & Wesson	Lead	146	745	180	4

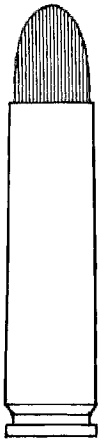
* Not KLEANBORE.

.38 Smith & Wesson	M. Pt.	143	745	177	4½
.38 Smith & Wesson—Special*	Lead	158	870	266	7
.38 Smith & Wesson—Special	Lead	158	870	266	7
.38 Smith & Wesson—Special	Lead	200	745	247	5
.38 Smith & Wesson—Special	M. Pt.	158	870	266	7½
.38 Smith & Wesson Special Sharp Shoulder Bullet	Lead	146	770	193	....
.38 Smith & Wesson Special Targetmaster	Lead	146	770	193	....
.38 Smith & Wesson Special Targetmaster	Lead	158	870	266	7
.38/44 Smith & Wesson—Special Hi-Speed	M. Pt.	158	1115	436	10
.38/44 Smith & Wesson—Special Hi-Speed	Lead	158	1115	436	7½
.38 Colt New Police (Police Positive)	Lead	150	695	161	4
.38 Short Colt	Lead	125	770	165	4
.38 Long Colt	Lead	150	785	205	6
.38 Colt Special	Lead	158	870	266	6½
.38 Colt Special Hi-Speed	M. Pt.	158	1125	445	10
.38 Colt Special Hi-Speed	Lead	158	1115	436	7½
.41 Short Colt	Lead	163	720	186	4
.41 Long Colt	Lead	195	745	241	5
.44 Smith & Wesson—American	Lead	218	695	235	4
.44 Smith & Wesson—Russian	Lead	246	770	324	4
.44 Smith & Wesson—Special	Lead	246	770	324	....
.44 Smith & Wesson—Special	M. Pt.	246	770	324	....
.45 Colt	Lead	250	870	421	6
.45 Colt Automatic Pistol	M. C.	230	860	378	6
.45 Colt Automatic Targetmaster	M. C.	230	750	288	....
.45 Automatic Rim	M. C.	230	820	343	6
.45 Automatic Rim	Lead	230	820	343	6
.455 Webley Mark II	Lead	265	600	210	....

*Not KLEANBORE

MILITARY AMMUNITION

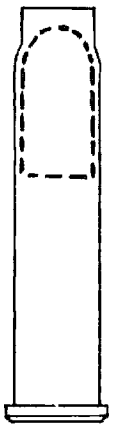
The following drawings of military cartridges are as accurate to size as reproductive facilities permit. They are reproduced here by courtesy of Johnson Automatics Incorporated.



U.S.–30–S.R. M1

B.D.– R.N.–G.M.J.–H.B.	
B.W.	110
P.W.	14.1
C.T.	S.–R.L.
T.W.	194.2
C.P.	41,000
M.V.	1,780
M.E.	775
M.A.	—

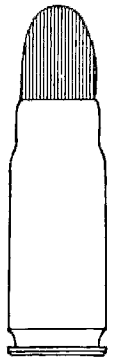
United States



7.5 MM
Nagant Revolver

B.D. –..F.N.–L.–F.B.	
B.W.	108
P.W.	5
C.T.	S.–R.
T.W.	—
C.P.	—
M.V.	725
M.E.	122
M.A.	—

Russia
Norway



7.63 Mauser
Auto Pistol

B.D.– R.N.–C.N.J.–F.B.	
B.W.	85
P.W.	7
C.T.	B.N.–R.L.
T.W.	—
C.P.	—
M.V.	1,300
M.E.	329
M.A.	—

Germany
ETC.

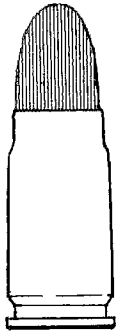
KEY TO ABBREVIATIONS

B.A.—Bronze Alloy.
B.D.—Bullet Description.
B.N.—Bottle Necked.
B.T.—Boat Tailed.
B.W.—Bullet Weight (in grains).
C.J.—Copper Jacket.
C.N.J.—Cupro Nickel Jacket.
C.P.—Chamber Pressure (in lbs. per sq. inch).
C.T.—Case Type.
F.B.—Flat Base.
F.N.—Flat Nosed.
G.M.J.—Gliding Metal Jacket.
H.B.—Hollow Base.
L.—Lead.
M.A.—Maximum Accuracy Range (in yards).
M.E.—Muzzle Energy (in foot pounds).
M.V.—Muzzle Velocity (in feet per second).
P.—Pointed.
P.W.—Powder Weight (in grains).
R.—Rimmed
R.L.—Rimless.
R.N.—Round Nosed.
S.—Straight.
S.J.—Steel Jacket.
S.R.—Semi-Rimmed.
T.W.—Total Weight of Cartridge (in grains).

7.65 MM Luger Auto Pistol

B.D.-	R.N.-C.N.J.-F.B.
B.W.	93
P.W.	5.9
C.T.	B.N.-R.L.
T.W.	—
C.P.	—
M.V.	1,200
M.E.	300
M.A.	—

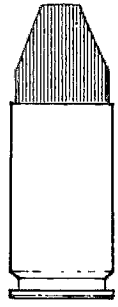
Germany
Etc.



8 MM Nambu Auto Pistol

B.D.-	R.N.-C.N.J.-F.B.
B.W.	102
P.W.	4
C.T.	B.N.-R.L.
T.W.	—
C.P.	—
M.V.	—
M.E.	—
M.A.	—

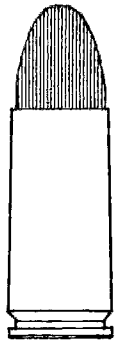
Japan



9 MM Luger Auto Pistol

B.D.-	F.N.-C.N.J.-F.B.
B.W.	125
P.W.	5.5
C.T.	S.-R.L.
T.W.	—
C.P.	24,000
M.V.	1,075
M.E.	320
M.A.	—

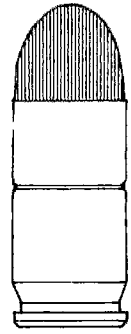
Germany
ETC.



9 MM Steyr
Auto Pistol

B.D.	-R.N.-S.J.-F.B.
B.W.	116
P.W.	6.2
C.T.	S.-R.L.
T.W.	—
C.P.	—
M.V.	1,200
M.E.	370
M.A.	—

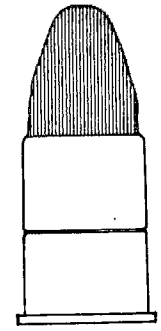
Austria
Hungary



.45 A.C.P.

B.D.	R.N.-G.M.J.-F.B.
B.W.	230
P.W.	5
C.T.	S.-R.L.
T.W.	325
C.P.	12,000
M.V.	800
M.E.	329
M.A.	—

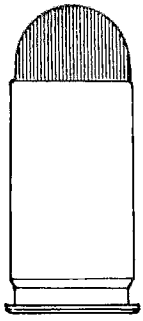
United States
British Empire



.455 M II
Webley Revolver

B.D.	P.-L.-H.B.
B.W.	265
P.W.	7
C.T.	S.-R.
T.W.	—
C.P.	—
M.V.	600
M.E.	220
M.A.	—

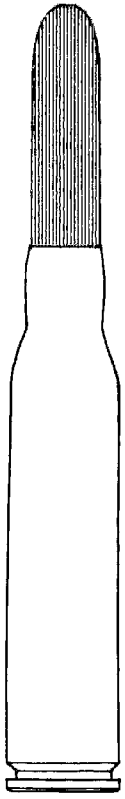
British Empire



.455 Webley
Auto Pistol

B.D.-R.N.-C.N.J.-F.B.	
B.W.	220
P.W.	7
C.T.	S.-S.R.
T.W.	—
C.P.	—
M.V.	750
M.E.	270
M.A.	—

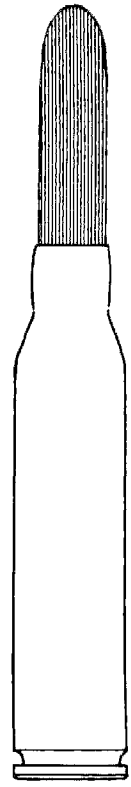
British Navy



6.5 MM
Mannlicher

B.D.- R.N.-S.J.-F.B.	
B.W.	159
P.W.	36
C.T.	B.N.-R.L.
T.W.	348
C.P.	40,300
M.V.	2,223
M.E.	1,900
M.A.	800-1,000

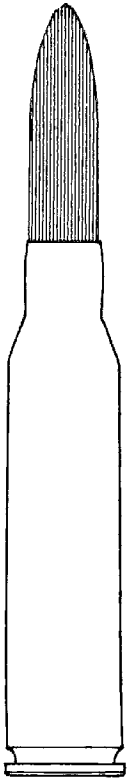
Greece



6.5 MM
Mannlicher Carcano

B.D.- R.N.-C.N.J.-H.B.	
B.W.	161.8
P.W.	34
C.T.	B.N.-R.L.
T.W.	350
C.P.	—
M.V.	2,296
M.E.	1,925
M.A.	800-1,000

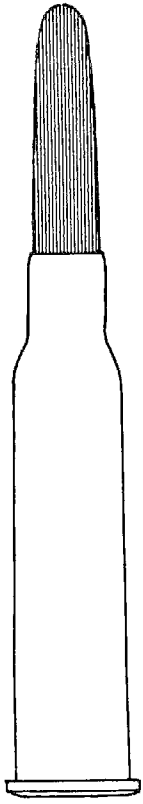
Italy



6.5 MM
Mannlicher Carcano

B.D.	P.-C.N.J.-F.B.
B.W.	123
P.W.	—
C.T.	B.N.-R.L.
T.W.	320
C.P.	—
M.V.	2,450
M.E.	1,850
M.A.	800-1,000

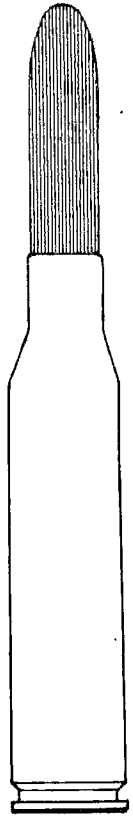
Italy



6.5 MM
Mannlicher

B.D.	R.N.-S.J.-F.B.
B.W.	159
P.W.	38
C.T.	B.N.-R.
T.W.	348
C.P.	—
M.V.	2,433
M.E.	2.050
M.A.	800-1,000

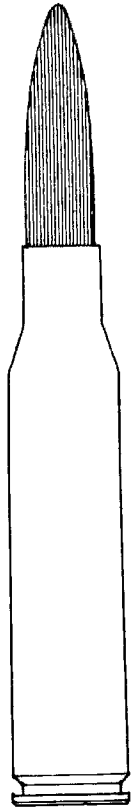
Holland
Rumania



6.5 MM
Mauser

B.D.	R.N.-C.N.J.-F.B.
B.W.	155.8
P.W.	—
C.T.	B.N.-R.L.
T.W.	345
C.P.	—
M.V.	2,395
M.E.	2,000
M.A.	800-1,000

Sweden
Luxemburg

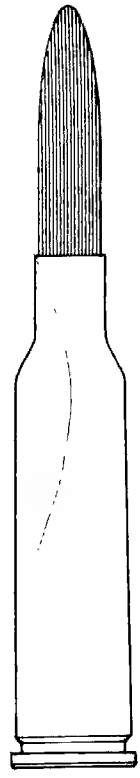


6.5 MM

Krag-Jorgenson

B.D.	P.-C.N.J.-F.B.
B.W.	156.4
P.W.	36.0
C.T.	B.N.-R.L.
T.W.	372
C.P.	—
M.V.	2,460
M.E.	2.050
M.A.	800-1,000

Norway

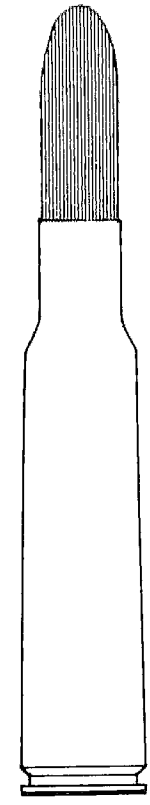


6.5 MM

Arisaka

B.D.	P.-C.N.J.-F.B.
B.W.	139
P.W.	33
C.T.	B.N.-S.R.
T.W.	326
C.P.	—
M.V.	2,500
M.E.	1,950
M.A.	800-1,000

Japan

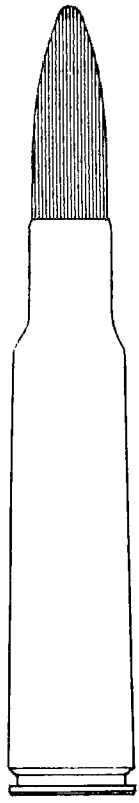


7 MM

Mauser

B.D.	R.N.-C.N.J.-F.B.
B.W.	172
P.W.	38.3
C.T.	B.N.-R.L.
T.W.	377.4
C.P.	45,000
M.V.	2,296
M.E.	2,056
M.A.	800-1,000

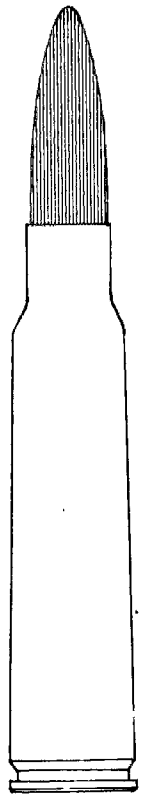
Spain
Serbia



7 MM
Mauser

B.D.– P.–C.N.J.–F.B.
B.W. 140–160
P.W. ..... —
C.T. .....B.N.–R.L.
T.W. 345–365
C.P. 34,000
M.V. 2,750–2,900
M.E. 2,400–2,500
M.A. 1.000–1,200

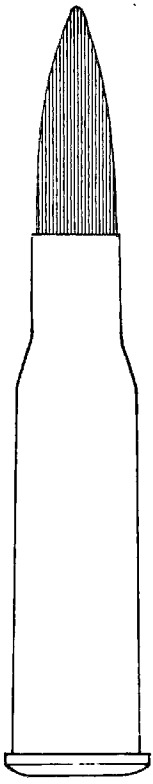
Brazil Chile
Columbia Honduras
Mexico China
Uraguay



7.62 MM
Schmidt–Rubin

B.D.–... P.–S.J.–B.T.
B.W. 174
P.W. 49.3
C.T. .....B.N.–R.L.
T.W. 404
C.P. ..... —
M.V. 2,720
M.E. 2,800
M.A. 1,000–1,200

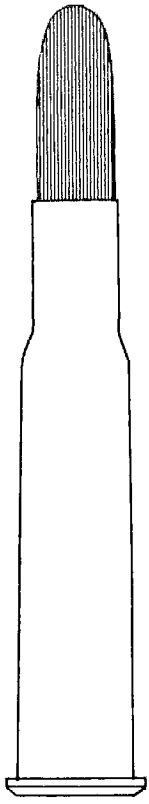
Switzerland



7.62 MM
Mosin–Nagant

B.D.– P.–C.N.J.–H.B.
B.W. 148
P.W. 50
C.T. .....B.N.–R.
T.W. 348
C.P. ..... —
M.V. 2,830
M.E. 2,545
M.A. 1,000

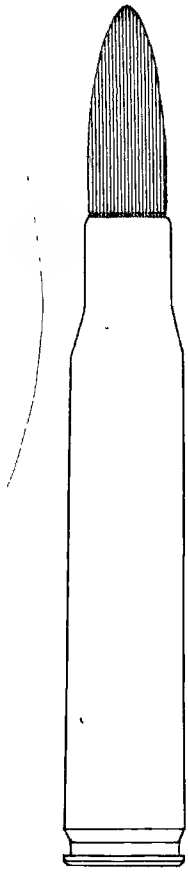
Russia



.30 Krag–Jorgenson

B.D.–	R.N.–C.N.J.–F.B.
B.W.	220
P.W.	40
C.T.	B.N.–R.
T.W.	—
C.P.	42,500
M.V.	2,000
M.E.	1,910
M.A.	800–1,000

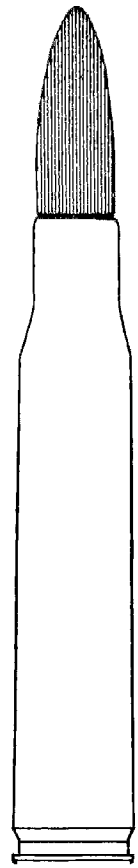
United States



U.S. 30–06

B.D.–	P.–C.N.J.–F.B.
B.W.	150
P.W.	50
C.T.	B.N.–R.L.
T.W.	395
C.P.	52,000
M.V.	2,700
M.E.	2,429
M.A.	1,000

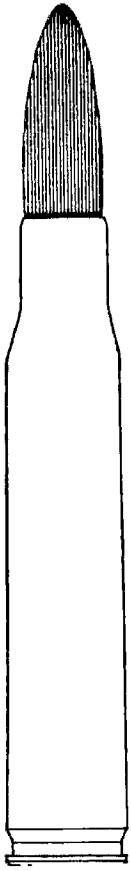
United States



U.S. 30 M1

B.D.–	P.–G.M.J.–B.T.
B.W.	174.5
P.W.	50
C.T.	B.N.–R.L.
T.W.	415
C.P.	48,000
M.V.	2,650
M.E.	2,675
M.A.	1,000–1,200

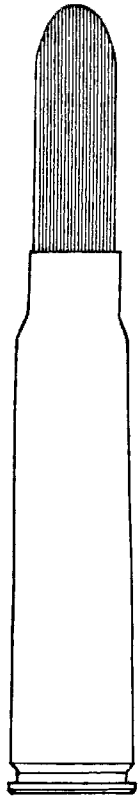
United States



U.S. 30 M2

B.D. P.–C.N.J.–F.B.	
B.W	150
P.W.	—
C.T.	B.N.–R.L.
T.W.	395
C.P.	38,000
M.V.	2,700
M.E.	2,429
M.A.	1,000

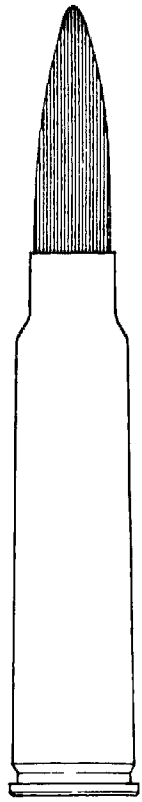
United States



7.65 MM Mauser

B.D.– R.N.–C.N.J.–H.B.	
B.W.	215
P.W.	42.5
C.T.	B.N.–R.L.
T.W.	441
C.P.	39,400
M.V.	2,034
M.E.	2,000
M.A.	800–1,000

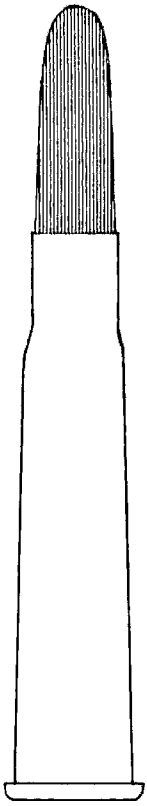
Belgium
Ecuador



7.65 MM Mauser

B.D. – P.–C.N.J.–F.B.	
B.W.	154
P.W.	—
C.T.	B.N.–R.L.
T.W.	390
C.P.	—
M.V.	2,788
M.E.	2,700
M.A.	1,000

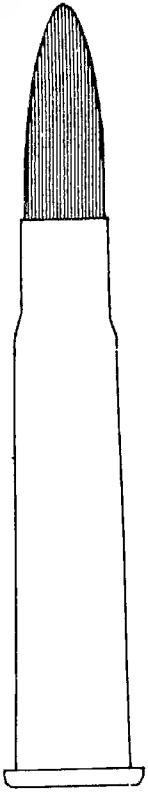
Turkey
Argentina
Peru



.303 M VI

B.D.- R.N.-C.N.J.-F.B.	
B.W.	215
P.W.	30
C.T.	B.N.-R.
T.W.	425
C.P.	35,000
M.V.	2,000
M.E.	1,950
M.A.	800-1,000

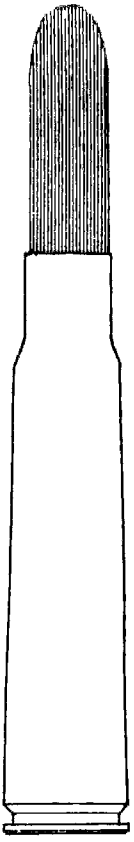
British Empire



.303 M VII

B.D.- P.-C.N.J.-F.B.	
B.W.	174
P.W.	37.5
C.T.	B.N.-R.
T.W.	384
C.P.	39,000
M.V.	2,440
M.E.	2,350
M.A.	1,000

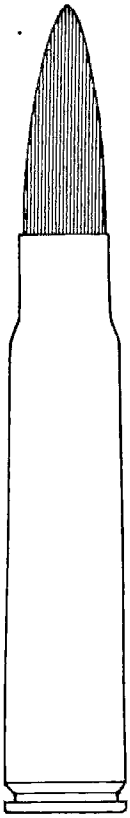
British Empire



7.9 MM Mauser

B.D.- R.N.-S.J.-F.B.	
B.W.	227
P.W.	40.75
C.T.	B.N.-R.L.
T.W.	431
C.P.	42,000
M.V.	2,093
M.E.	2,100
M.A.	800-1,000

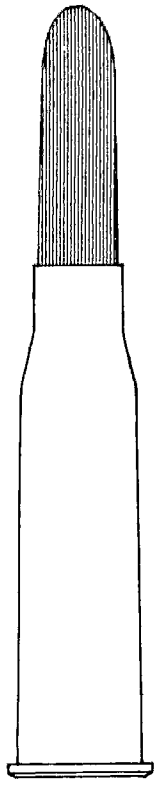
Germany



7.9 MM
Mauser

B.D.	—..P.–S.J.–H.B.
B.W.	154
P.W.	.....49.5
C.T.	.....B.N.–R.L.
T.W.	369
C.P.	35,000
M.V.	2,882
M.E.	2,800
M.A.	1,000

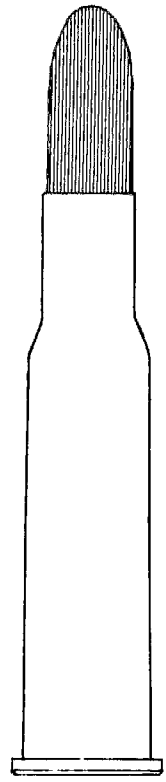
Germany
Czechoslovakia
Poland
Belgium



8 MM
Mannlicher

B.D.	–R.N.–S.J.–F.B.
B.W.	244
P.W.	.....43.2
C.T.	.....B.N.–R.
T.W.	..... —
C.P.	39,400
M.V.	2,034
M.E.	2,200
M.A.	800–1,000

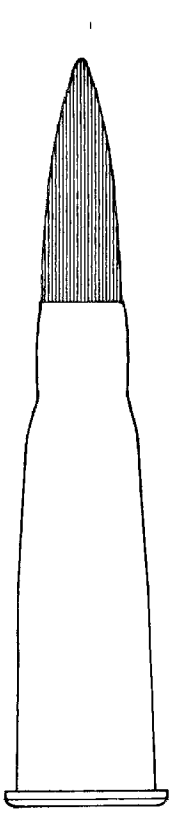
Austria
Bulgaria
Hungary

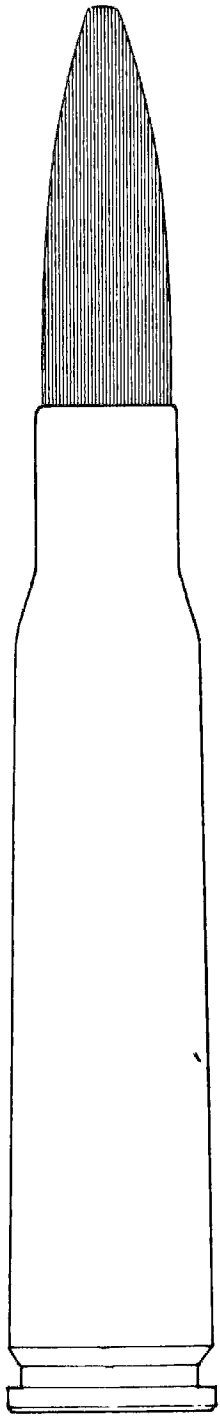


8 MM Krag–
Jorgenson

B.D.	— P.–C.N.J.–H.B.
B.W.	196
P.W.	50
C.T.	.....B.N.–R.
T.W.	.....450.6
C.P.	..... —
M.V.	2,530
M.E.	2,750
M.A.	1,000

Denmark





8 MM
Lebel

B.D.	...P.-B.A.-B.T.
B.W.	.....197.6
P.W.	.....46.3
C.T.	.....B.N.-R.
T.W.	.....426.2
C.P.	35,500
M.V.	2,380
M.E.	2,600
M.A.	1,000

France

U. S. 50 M1

B.D.	-P.-G.M.J.-B.T.
B.W.	753
P.W.	240
C.T.	.....B.N.-R.L.
T.W.	1,876
C.P.	54,000
M.V.	2,500
M.E.	10,765
M.A.	..... --

United States

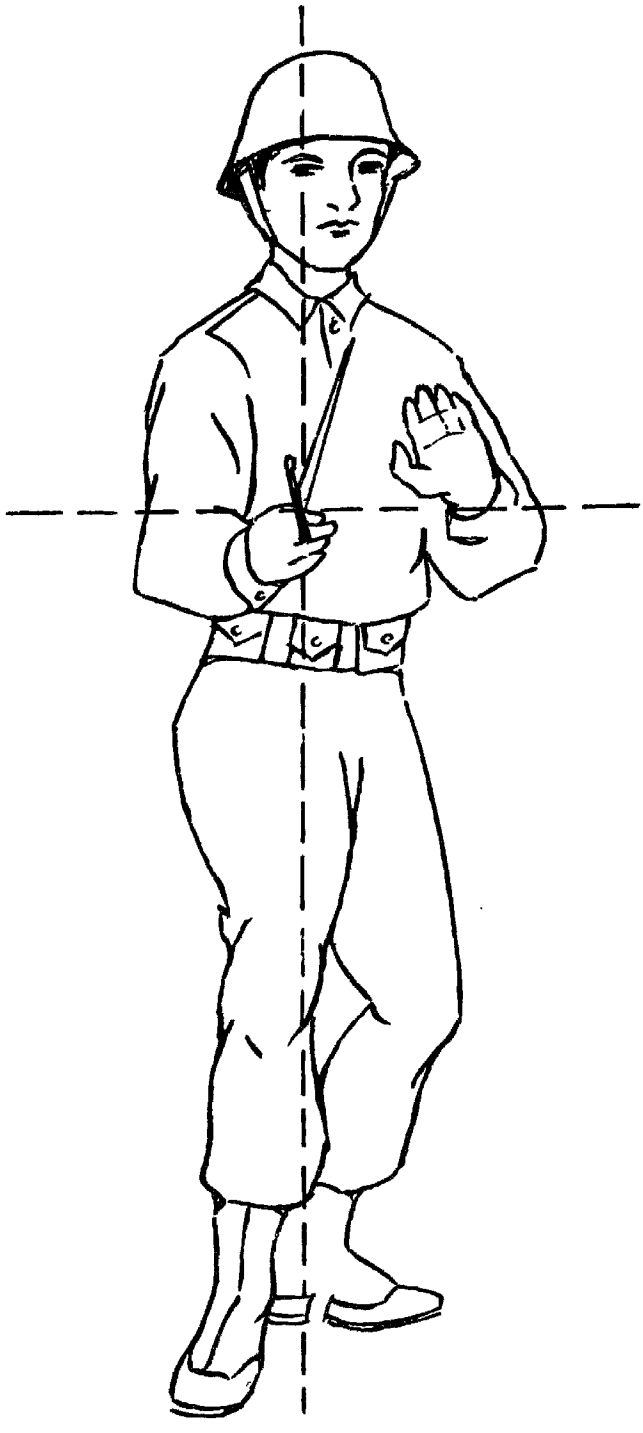
Chapter 9

KNIVES AND ROUGH AND TUMBLE

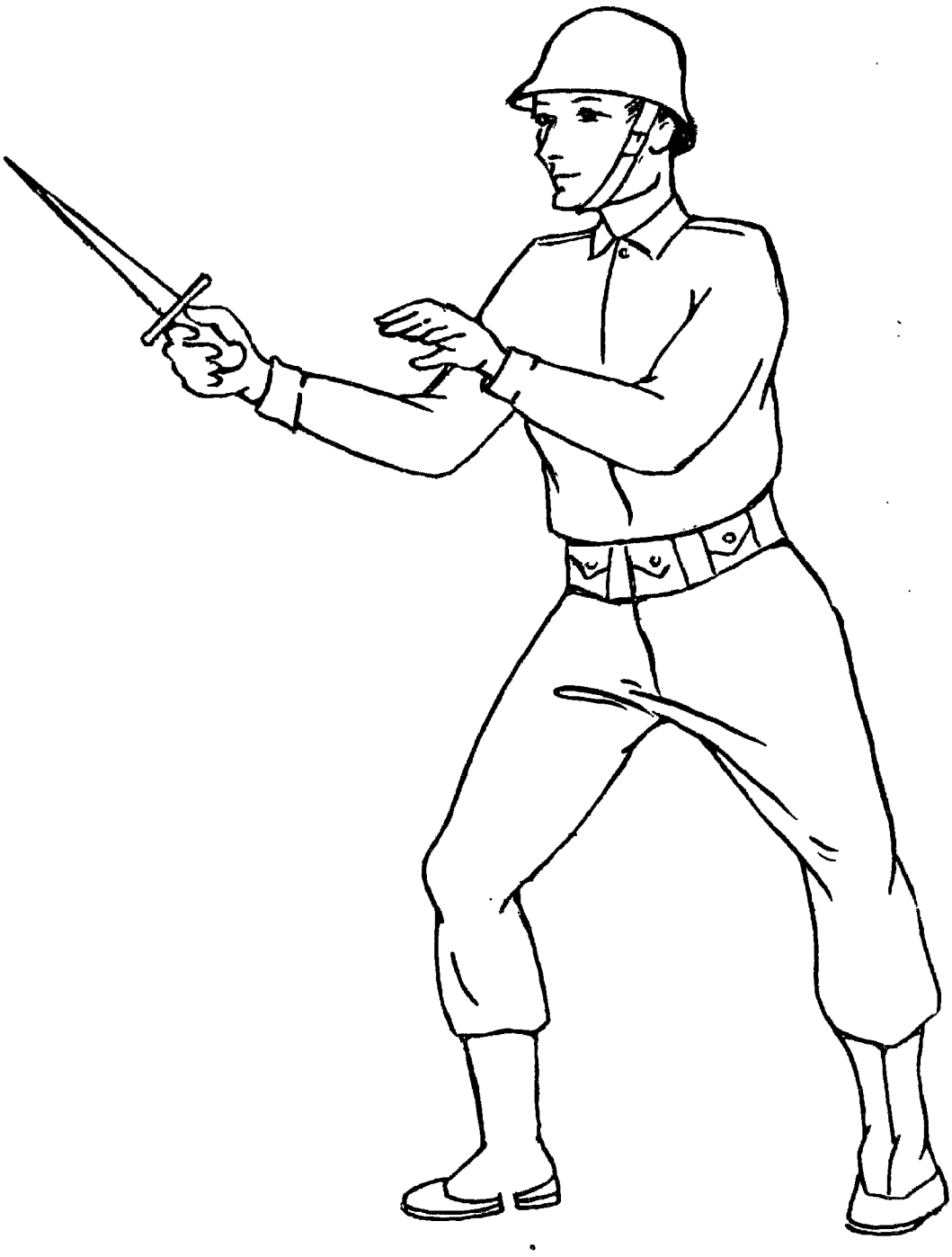
MORE THAN ever before, owing in great part to the publicity received by the Commandos and other guerrillas, hand-to-hand fighting with edged weapons or with fists and feet has become a part of training for modern warfare.

How far the average State Guard unit chooses to go in this direction is in large part dependent upon the capabilities of the personnel and their officers. But it is certainly reasonable in view of the lack of some types of weapons to take advantage of every possible form of fighting, particularly as most of the weapons issued to State Guards do not have any provisions for bayonets.

One of the hardest fighting groups in the world, the native, but Dutch-trained, soldiers of the Netherland East Indies, carry as standard equipment a carbine and a short heavy knife or sword. Their regular training includes the use of the carbine in the left hand as a shield while the knife or sword is used with the right for both attack and defense. This is a regular and recognized form of fencing exercise with them and a very deadly form of combat in serious fighting.



GOOD GUARD POSITION, FRONT VIEW

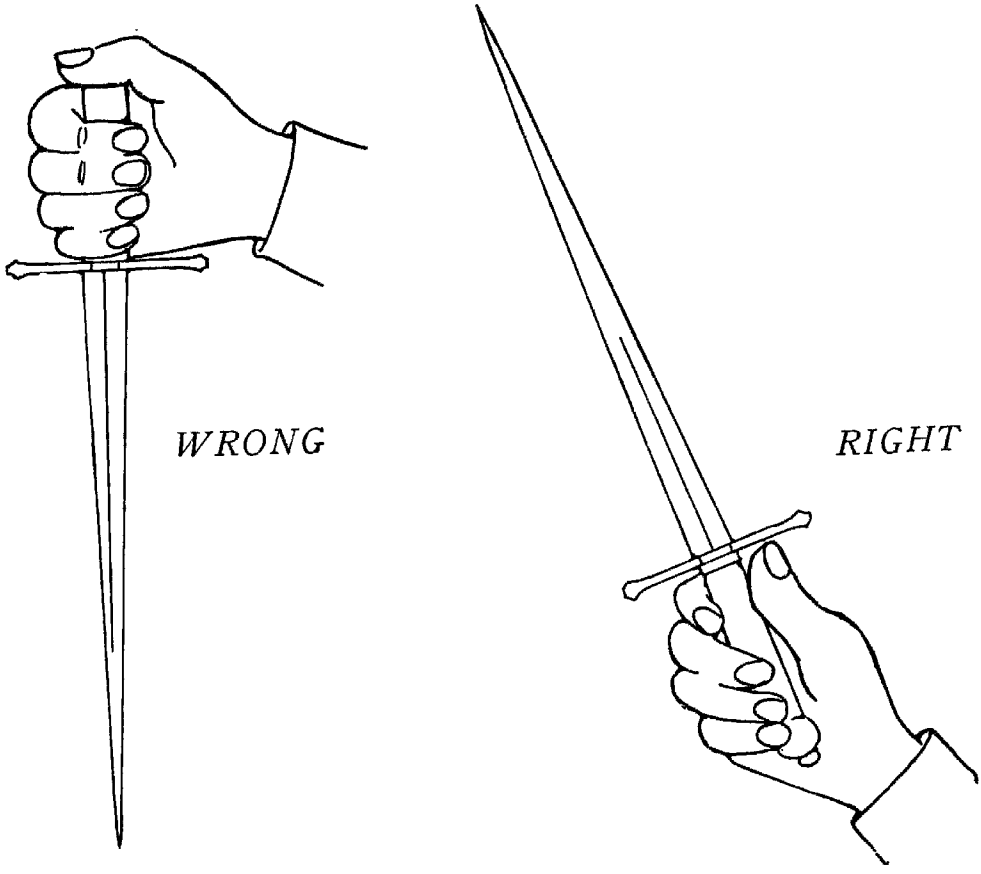


GOOD GUARD POSITION, SIDE VIEW

KNIFE FENCING

Most of the present-day fencing books do not take into consideration any use of the left hand, or the hand opposite to that holding the edged weapon, but again, fighting is not fencing, play, or sport; it is marbles for keeps and anything goes that tends to overcome the opposition.

One tenet of fencing, however, is a very good one for any type of edged-weapon fighting. This is that a straight line is the shortest distance between two points. Get behind

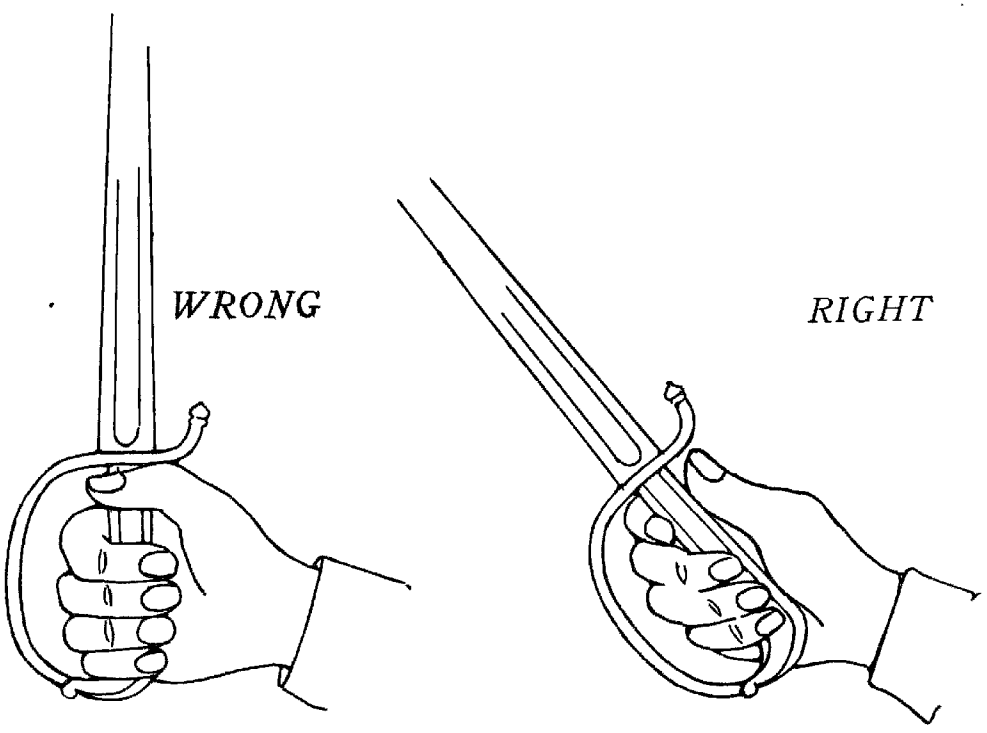


HOW TO HOLD A DAGGER FOR ANY TYPE OF COMBAT

your edged weapon and push it. Don't try to hold it with the thumb on the pommel and stab with it or grip it by the hand grip like an ax and use it only for hacking. A blade should be held point out with the thumb just behind the guard and thrusts should be as straight as possible. Cuts should be made with a flicking turn of the wrist without swinging the weapon so wide as to uncover the body.

GUARDS

The principle of guarding the person with any edged or striking weapon is very simple. The weapon is held in front of the body and more or less equidistant from all the parts



HOW TO HOLD A BOLO, MACHETE, OR OTHER CUTTING WEAPON

of the body that are to be guarded, or in the center line of the body and slightly above the waist. The body should be turned somewhat edgewise and the weight balanced between the feet with the weapon out and pointing toward the enemy. In the case of fighting with a knife in one hand and the other hand unarmed, the other hand should be carried palm out about in front of the face. It should be used, in jumping in, to seize any convenient part of the enemy's clothing or equipment when the occasion arises, or to help parry an attack, as a cut on the hand is far better than a cut across the throat.

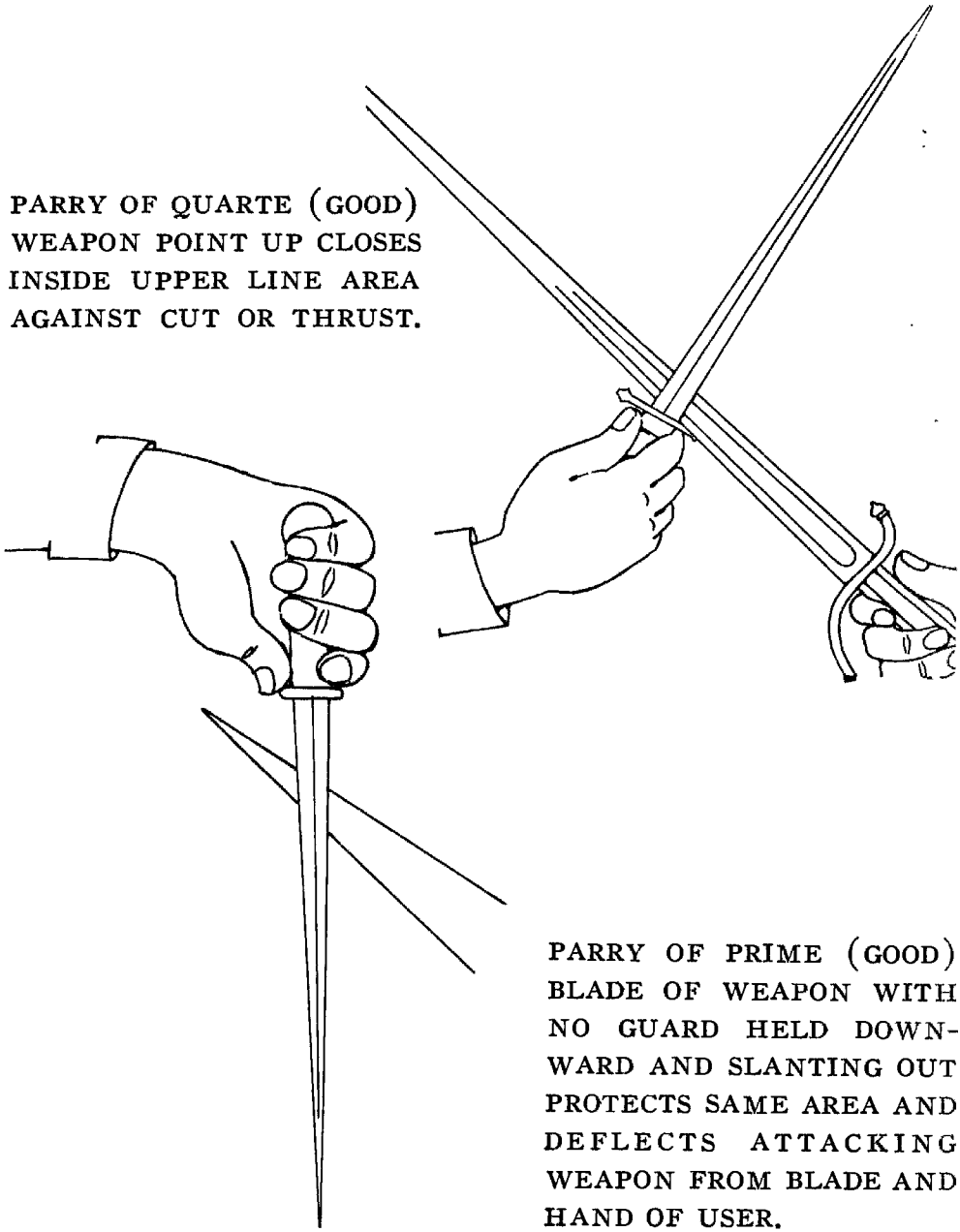
This position gives an orientation point for all guarding activities. Considering the weapon hand the center of the guard, all attacks must come above or below it or inside or outside of it.

In general, in knife fighting, there are two ways of warding off an attack. One is to cross the line of attack with your own weapon in such a way that the attack is deflected. If your own weapon has a substantial guard then this can be done with the point up and out. If your own weapon has not a substantial guard it should be done with the point bent backward and away from the attack in such a way that the weapon will be deflected down the blade and not into the knife hand of the parrier.

The strong parries are those made when the weapon is pushed in the direction of the knuckles of the hand holding the guarding weapon. Thus a parry taken above the guard and on the inside should be pushed inward to the left with the nails up, whereas a parry taken high on the outside should be pushed out to the right with the hand turned over and the nails down.

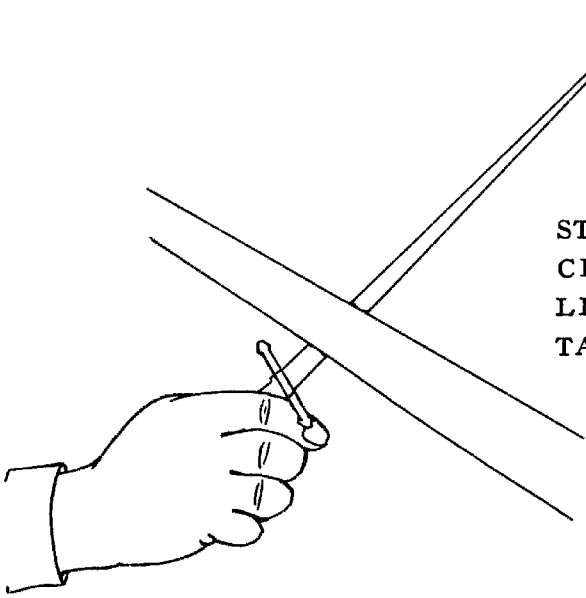
Parries taken on the side of the blade toward the thumb and upper edge of the hand were called in fencing "false edge" or weak parries as opposed to the right edge or strong

PARRY OF QUARTE (GOOD) WEAPON POINT UP CLOSES INSIDE UPPER LINE AREA AGAINST CUT OR THRUST.

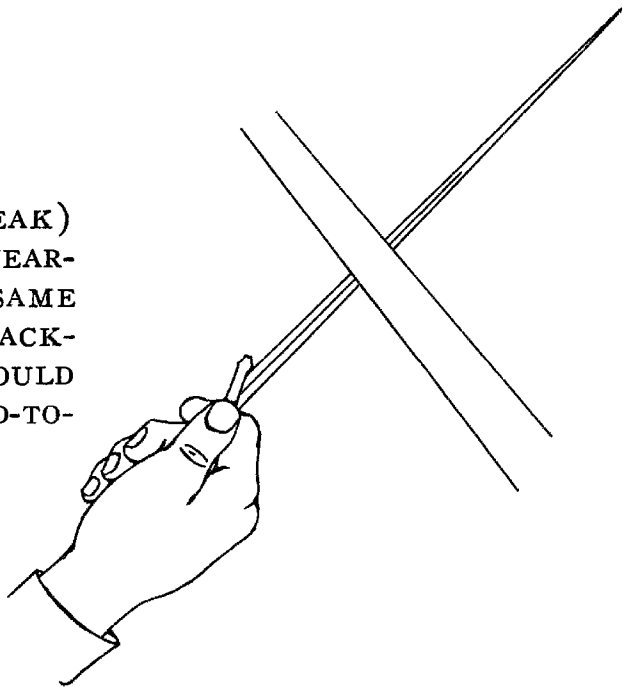


PARRY OF PRIME (GOOD) BLADE OF WEAPON WITH NO GUARD HELD DOWNWARD AND SLANTING OUT PROTECTS SAME AREA AND DEFLECTS ATTACKING WEAPON FROM BLADE AND HAND OF USER.

parries in the other direction. These parries were made with light fencing weapons against thrusts from similar weapons, but they should not be tried against any weapon of any weight or against a cut.



PARRY OF TIERCE (STRONG)
STRONG EDGE OF BLADE CLOSES OUTSIDE UPPER LINE AND PUSHES ATTACKING BLADE OUTWARD.



PARRY OF SIXTE (WEAK)
FALSE EDGE OR EDGE NEAREST FRONT CLOSES SAME AREA BY PUSHING ATTACKING BLADE OUT. SHOULD NOT BE USED IN HAND-TO-HAND COMBAT.

Another way of avoiding an attack is to move the body out of its line by jumping to one side, ducking, or leaping over the attack. This is possible for a man armed with a knife against a man armed with a gun and bayonet, because the gun and the bayonet is a relatively heavy, thrusting weapon, and it can be avoided by what was called in the fencing days "body evasion." Body evasion was practiced in the fencing days against heavy weapons of the old, large, broadsword and long rapier type. It became of much less importance when the small sword or fencing foil weapon came in; as the light weapons could be moved faster than the body of a man.

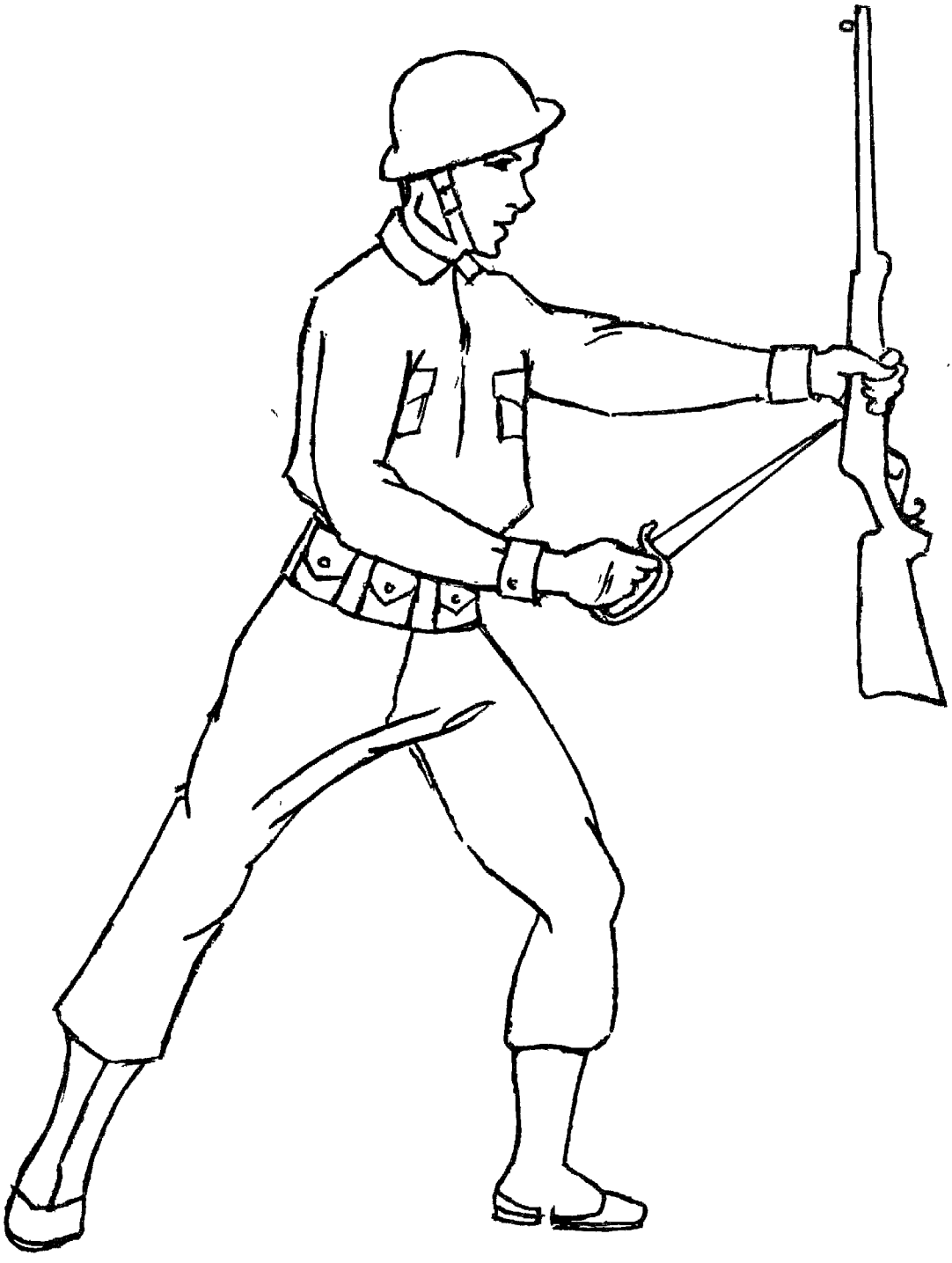
ATTACKS

In general, in attacking with an edged weapon always try to do it in such a way as to cover your own body with your attack. Thrust straight with the weapon between you and your opponent or cut with a swinging, flicking motion so that the wrist and guards still cover part of your body. Make all your movements fast and sure. Knife work is no good unless it is faster than the other fellow's defense or attack.

In close-up and rough-and-tumble fighting, the pommel of a knife is also an effective weapon if the blade is swung upward or downward and the pommel dashed into the face of your opponent.

AVAILABLE TYPES OF EDGED WEAPONS

There are usually available a number of types of knives and other cutting weapons. Sporting goods stores carry a large variety of so-called "hunting" knives, running all the way from the short Boy Scout models up to fairly long, heavy knives for rough work. These are not ideal fencing



GUARD POSITION USING RIFLE AND MACHETE TYPE WEAPON

weapons as their guards are small and the blades are apt to be too short for comfort, but they are far better than nothing.

Old army bayonets of any type that happen to be available either as relics or in use as garden tools, as they are sometimes found, are excellent weapons to work with. They should be sharpened as sharp as possible on both edges of the blade and brought to a sharp point. There is sufficient guard on them for considerable parrying work and they have good weight and balance for either thrusting or cutting. The ideal thrusting weapon is a double-edged dagger with a blade seven inches or more in length and a reasonable guard.

All short, edged weapons fall into three classifications: single-edged short weapons are classed as knives; double-edged short weapons as daggers; and weapons with three or more edges, or round with a point, are stilettos. Stiletto-type weapons are not as suitable for general combat as either of the other types, as they have no cutting edges and are usually relatively light and short. They were primarily designed for assassination by stabbing between the shoulder blades when no opposition was expected, and that is about all they are good for.

In the absence of available daggers or knives of suitable type, it is possible to take a leaf out of the book of old frontiersmen and make very satisfactory weapons out of files. The steel in a file is very tough and its shape is such that with a minimum of grinding it can be made into a double-edged dagger of convenient size and shape without much trouble.

A simple cross guard is not a very complicated machine

shop job and can be made out of any piece of scrap metal. A plain oval hilt of wood can be driven on like a regular file handle. In fact, the regular file handle can be used if the sides are flattened slightly and scored to give firmness of grip.

Another available group of edged weapons is the "bolo" or "machete" type of cutting knives. These are used more or less as garden tools and brush knives, especially in the South American countries, but they may be found in the average town. These weapons run between 15 and 25 inches in length and are characterized by blades wider and heavier at the point than at the hilt.

Their technique is definitely a cutting play, although after a cut has been parried, a flip of the wrist will take the point over the parrying weapon and drive it home in a straight thrust. They are not balanced for long thrusting, and parries with them should be taken on the blade with the hilt up so that the parried weapon will slide down the blade. Another swing of the wrist drives home the riposte, preferably at the side of the neck.

Play of bolos and machetes should be similar in general to the saber play of fencing except on a closer-up scale with the use of the left hand both for guard and seizure whenever possible and also as an auxiliary defense with a gun or any other convenient implement held in the left hand.

Any of the standard works on fencing which are available will give a pretty good idea of general fencing principles. *The Book of Fencing,* by E. L. Cass, contains an historical section of about four chapters which I wrote at the time and which covers the early styles of fighting with daggers and heavy weapons perhaps more completely than most fencing books.

ROUGH AND TUMBLE

Along with the increasing use of knives and other edged weapons has come a tendency to teach simple and easily learned rough tricks of hand-to-hand fighting which employ no weapon or at most a short stick or billet. Such books as *Get Tough* and *Guerrilla Warfare* advocating this system of fighting, point to its very general use in Europe. In general this "rough and tumble" employs only simple tricks that can be taught in a very short time and really require only to be explained and demonstrated once or twice to be understood. The basic idea of this school of combat seems to be, "Anything goes, and the further it goes the better."

All kinds of foot kicks are recommended as well as the simple throws and holds of wrestling and jiu-jitsu. There is no need of any complicated course in either boxing, wrestling, or jiu-jitsu as they take too much time and effort on the part of both pupil and instructor.

Some cardinal points of hand-to-hand combat may be stressed. The first is to keep your feet and regain them as rapidly as possible if you do go down. Second, use the edge of your hand for striking all blows rather than the clenched fist. Blows applied to the opponent's wrist, sides, back and front of the neck, and so forth are far more deadly with the edge of the hand than any blow that can be struck with the clenched fist. Do everything fast and do it faster than your opponent. Get in and strike and get out again whether you strike home or not.

The simple trick of scooping up a handful of dust, sand, or dirt and throwing it into the face and eyes of your opponent will create a useful diversion if the terrain is such that convenient material is available.

A short stick not over 30 inches in length can be used held in both hands as a thrusting or a striking weapon. It is primarily for close work, as a wide swing with a piece of equipment is an invitation for opposition to step inside of it. A stick driven with the force of both hands, body and shoulder behind it upward into the solar plexus, even though it travels not more than 5 or 6 inches, is apt to have a devastating effect, and a short cross blow at the neck or face should also be effective.

Never do the thing which is the first impulse of the average person with a stick or billy, that is, swing it up at full arm's length and try to hit your opponent on the top of the head with it. In the first place this is a relatively ineffective blow, and in the second place you are left wide open while you are doing it. Strike crosswise at the face, temples, neck, upper arm muscles, or thrust short into the stomach or solar plexus. Keep yourself covered and move ahead of the other fellow.

THE GARROTE

The quaint old-fashioned trick of garroting is still effective on lone sentries, though not strictly combat as the opposition should never realize he is involved until he is hopelessly overcome. It is an effective maneuver under those circumstances. A length of any convenient material such as rope, strong cord, twisted cloth, or something of similar size or shape, about three feet long with a loop in one end is all the equipment necessary.

Slip the loop over the first finger of your right hand and allow the cord to lie across the palm of the hand and down beyond the little finger. Close the hand and pick up the end of the cord in the left hand by its upper end, holding the

hand so that the thumb and fingers are on the inner side of the cord and the end of it is level with the little finger. As you approach the sentry from behind, open the right hand and throw the cord around his neck from the back with the left, drawing it through the right hand, palm up, until it is nearly taut. Close the right hand and turn the wrist over to form a tourniquet effect at the back of the neck.

If necessary, duck under your arm and turn once more, holding the arm out stiff so that your opponent is held at arm's length with a cord he cannot reach tightened around his neck and your fist forward against the back of his neck. You are at arm's length away from him and there is relatively little that he can do about it. A sharp pull at this point will dump him over backward and fold his chin down on the cord, thus enhancing the strangling effect.

This is garroting as practiced by the thugs in India for countless generations, and the mortality records of unfortunate passers-by in their districts attest to its considerable success.

This Commando-type work can be carried as far as any given unit chooses to take it. A dozen or so simple tricks of knife fighting, hand-to-hand combat, and the like make a pretty fair stock in trade. They can be selected and taught without too much trouble. Care should taken in teaching to emphasize the danger and deadliness of nearly every trick used in this type of work. They are all designed for slaugher and mayhem and should be practiced with the greatest possible care.

Chapter 10

GENERAL FIREARMS TACTICS

GIVEN AN assortment of the weapons previously described and a reasonable amount of training with them, a logical course of action for the command can and should be planned for any normal occurrence within the area for which it is responsible.

Some State Guard units are motorized battalions which assemble at a given point and then travel by car as reserves to any necessary situation that needs to be covered. Such units must perhaps give more thought to general problems than the units which are designed to operate primarily in their own territory.

The problem of getting the men together and armed and equipped for rapid action is one that again depends to a considerable extent upon the circumstances of the individual unit. Organization varies all the way from the unit operating from a centrally located armory and drawing its men from several towns in a radius of five to ten miles to the Minute Man type of organization which a number of State Guard units have already adopted. It is obvious that the larger unit cannot meet any sudden situation with a full company, so some plan of operation for members nearest to the organization point should be thought out in advance.

The Minute Man plan provides for localized sub-units in the form of squads to the number of one carload of men who live close together. Their squad leaders and car drivers are designated and one or more substitutes are arranged for so that absences of key men can be covered.

At a given signal or series of signals each carload of men assembles in its car fully armed and equipped from equipment kept at home. The unit proceeds either to one of several designated meeting points that can be readily indicated by an alarm signal system, or else to a point designated by a company commander by telephone. In this case it is necessary for the company commander to arrange with the telephone company that on his giving a particular call all car unit leaders, or several lieutenants at least, will be plugged in on the one call and a repeat of directions three or four times will carry to most of the drivers. The sub-unit leaders, lieutenants and non-commissioned officers, can continue to call any driver who has not answered the first call, while those who have answered first drive to the designated point.

This system will get at least the nucleus of a defense force to any point within the average town, armed and equipped, within fifteen or twenty minutes of the time that an alarm is given, and will have available cars to block roads or bring headlights to bear for night use on beaches or other landing points and to cut off attack areas by concentration of light or rapid patrol.

In the field a definite program for the use of the various types of firearms should be planned out. Knowledge of cover and of vulnerable points for attack is very important in this connection. In general the shotgun men should form the advance line which lies nearest to the enemy but cover should

be used in such a way as not to expose this line to fire from beyond its own range when it can possibly be avoided. Here the barrage type of fire is very useful into areas which it is suspected are occupied by the enemy. A shotgun barrage with the guns held at varying angles up to 35 degrees will be effective at from 200 to 500 yards.

The riflemen from behind the shotgunners can support them with accurate and longer-ranged fire and do sniping work to pick off exposed members of the enemy or enemy equipment such as light machine guns, troop carriers, etc. Submachine guns, where they are present, will have to take the place occupied by light and heavy machine guns in regular army units. They should operate as far as possible from the flanks, using their fire power to search suspected areas and exert a crossfire on any enemy advance.

Machine guns are always most effective in supporting each other in general attacks. If there are four or five guns, a pair of them can be placed in the center of the line and one at each end, the center pair to shoot outward toward the flanks and the pair on the end to shoot inward across the line of the advance.

Never fire a machine gun straight ahead at the enemy unless his concentration is very deep, or unless it is impossible to get into flanking position. Under most conditions the submachine guns can be used semi-automatic with a series of rapidly fired single shots as opposed to a burst of automatic fire which is harder for inexperienced shooters to control.

This barrage type of fire from the submachine guns will be as effective at least as shotgun fire in the area type of problem. Individual targets, of course, cannot be hit con-

sistently at much over 100 yards with single shots, but shots are worth trying at two to three times that distance at groups or such targets as machine guns and mechanized equipment when the men being carried are in the open and exposed. The .45 pistol bullets used by the submachine guns will not penetrate any type of armor so they should not be wasted against armored vehicles when the riders are thoroughly enclosed.

In fighting through the streets and buildings of a town or city, shotguns and submachine guns are at their best. Distances here are seldom outside their extreme range, and their scattering power is most effective on groups such as are met with in this type of combat.

In placing men on guard or sending small groups out for special purposes, it is best to mix shotguns and riflemen in the same squads or use them in assorted pairs so that they will have some chance of scoring hits under any conditions they may meet.

For riot work a somewhat similar grouping of weapons should be used if possible. Shotguns to the front, tommy guns at the flank and riflemen in support make a very impressive combination. Here again the use of cars to bring up units is very desirable as riflemen can use them to stand on and deliver a plunging fire from a range outside that at which they can be reached by return fire from the mob. The main aim of a State Guard unit endeavoring to control a mob should be to avoid bloodshed. The best way to avoid bloodshed is to set up a show of force which will prove to anything but the most crazed mob that an attack is hopeless. Massed shotguns at a reasonable distance from the crowd, riflemen back where the crowd cannot possibly get at them,

Thompson guns at danger points and a group of men armed with sticks and sidearms to go into the crowd and cut out leaders should be the most effective combination if no bayonets are available. Sticks should be used as suggested in the section on Rough and Tumble, not to strike aimlessly at the heads of the opposition, but to cut and jab where they will do the most hurt and the least real harm. A mob or riot situation is always a bad one, and full-armed clubbing, while it is the least effective procedure with a stick, always looks the worst from the point of view of the newspaper photographers and the general public. If firearms are not carried into the crowd by the members of the troop who are attempting to arrest leaders, the crowd cannot take the firearms away from them and use them against the unit. The general police practice of using tear gas is, of course, very desirable if tear gas is available. But, if fifth-columnist activities reach the point of real Nazi-fomented rioting, it is probable that the usual endeavors of the forces of law and order to treat a crowd as gently as possible in trying to control it, will be abrogated for the duration and as much force brought to bear and actually used as may be necessary to keep any situation under control.

BIBLIOGRAPHY

THE INTENT of this manual has been not to provide specific information or material that is otherwise readily available but to correlate and bring together the general information on all types of small arms and their use which is normally scattered about in a great many places and not easy to find.

The author has suggested that under each particular item of instruction or training, reference be made to particular works on that subject, and this should be done whenever it is possible to obtain them.

The greatest assistance that can be obtained from one source is undoubtedly the material available from the National Rifle Association at 1600 Rhode Island Avenue, Washington, D. C. At least one officer from every State Guard company should be a member of the National Rifle Association. It offers unlimited services of all types in connection with firearms and their use.

In addition to all kinds of technical advice which can be had merely by writing for it, the National Rifle Association publishes a magazine, *The American Rifleman,* which is devoted to arms subjects and under present circumstances carries a very high proportion of articles interesting to military readers. The Association is also at present offering a series of manuals on all phases of rifle, pistol, riot gun, and other small arms training, Home Guard organization, infantry training, air-raid defense, hand grenades, and all the other allied subjects. Most of these manuals are sold at

the nominal price of twenty-five cents and they contain excellent and thorough treatment of their subjects from a very practical point of view. A list can be obtained from the National Rifle Association for the asking.

The Superintendent of Documents, U. S. Government Printing Office, Washington, D. C., is also a source from which all U. S. Training Manuals, Infantry Regulations, etc., can be obtained. The price list describing military material is listed as Price List 19, *Army and Militia, Aviation and Pensions. A list of publications relating to the above subjects for sale by the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C.* One of these lists should be obtained and studied carefully for the varied material it offers. A large part of the pamphlets offered sell for from ten to fifty cents.

The Infantry Journal, 1115 17th Street, N.W., Washington, D. C., is also a very worthwhile publication for State Guard units. It lists and sells a great many books on military subjects. The Infantry School at Fort Benning, Georgia, also prints publications of various military types and their book list is sent free to any interested party.

Several book companies specialize in small arms books. In particular the Small Arms Technical Publishing Company of Plantersville, South Carolina, under the direction of Mr. Thomas Samworth, has for the last fifteen or twenty years been publishing books on all types of small arms. Some specific books on small arms are:

Modern Gunsmithing, by James V. Howe, Funk & Wagnalls, New York. This is a very large and complete work on the making of guns and the sort of work that can be done on them by amateur and professional gunsmiths. Par-

ticular attention should be paid to the supplement which has recently been published.

Handloading Ammunition, by Philip Sharpe, Funk & Wagnalls, New York. This is a very complete work on the subject of ammunition of all types and the business of handloading.

The American Rifle, by T. Whalen, published in 1920 and *The Hunting Rifle* by the same author, published in New York in 1940. These are standard reference works on hunting rifles of all types, by an expert of long standing.

Rifles and Rifle Shooting, by Charles Askins, New York, 1926. Another good work on rifles by a well-known firearm authority.

The Rifle in America, by Philip Sharpe, William Morrow & Co., 1938. This is a very complete work on all kinds of rifles, ancient and modern and their ammunition. Mr. Sharpe is recognized the country over as outstanding in his field.

The Gun Book, by T. H. McKee, H. Holt & Company, New York, 1918. This is a very good general book, dealing with the principles underlying the various types of firearms and the obstacles which had to be overcome in order to make our arms what they are today.

Modern Shotguns and Loads, by Charles Askins, New York, 1929. This is a good reference work on shotguns. although, of course, all shotgun books available treat shotguns from a sporting rather than a military point of view.

Aside from the pistol books which will be found in the lists of the publishers already mentioned, a few more should be listed.

The Pistol in War, by Captain C. H. Robinson, published in London, 1940. This book gives an Englishman's idea of

the modern and practical use of pistols in the present type of warfare.

Shooting, by J. H. Fitzgerald, Hartford, Conn., 1930. This is an authoritative work on handguns by the well-known expert of the Colt Company.

Fast and Fancy Revolver Shooting, by Ed. McGivern, King Richardson Co., Springfield, Mass., 1938. This is a recent book on trick revolver shooting and quick draw work for close range combat.

Two books, of which I am co-author, also may be of interest:

A History of the Colt Revolver, by C. T. Haven and F. A. Belden, William Morrow & Co., New York, 1940. This details every Colt revolver and automatic pistol ever made.

Automatic Arms, Their History, Development and Use, by C. T. Haven and Captain Melvin M. Johnson, William Morrow & Co., New York, 1941. This is a full description of the automatics as used in modern warfare and goes into the early history of their development.

In the field of rough-and-tumble fighting and guerrilla tactics are the following:

Guerrilla Warfare, by Yank Levy, published by Penguin Books, Inc., and the Infantry Journal, 1942. This book covers its subject as thoroughly as it has been covered by any publication in the country.

Get Tough, by Captain W. E. Fairbairn, published by D. Appleton-Century Co., New York, 1942. This is full of very practical suggestions for rough-and-tumble fighting of all types—with knives, sticks or other weapons.

The Book of Fencing, by E. B. Cass, Lothrop, Lee & Shepard, Boston.